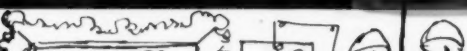


# ARMY

FEBRUARY 1957  
50¢



## WHO'S IN CHARGE HERE?

LIEUTENANT  
RICHARD A. LUPOFF



**U**NDER current regulations, within the Army a noncommissioned officer ranks a specialist, regardless of pay grades. However, in any situation involving individuals of more than one service, pay grade determines authority. That sounds simple enough. But when you construct a situation that could arise involving several services confusion gets out of hand.

In a dimly lit bistro a Wave boot (who has no business being there and wouldn't be except that we want to make our situation interesting) is receiving the unwanted attention of a Marine Corps staff sergeant. Unable to shake off the persistent marine, the Wave appeals to an Army specialist first class. The SP1 suggests, then requests, and finally orders the marine to cease and desist. As interservice precedence depends upon pay grade, and the SP1 is E-6 while the staff sergeant is E-5, the order is legal.

But the marine spies an Army corporal and says, "I order you to make this guy leave me alone." Again, this is a legal interservice command: An E-5 is ordering an E-4.

The corporal orders the SP1 to leave the marine alone. Although in terms of pay grade an E-4 is ordering an E-6, both are Army, so the noncommissioned officer ranks the specialist. Once more the order is legal.

It appears that the marine has won out, but if the SP1 thinks fast enough he can order the marine to order the Army corporal to rescind his order. Only then can the corporal order the specialist to rescind his order to the marine. (The only really constructive result of all this nonsense is that during the bickering, the little Wave scampers out of there and never returns.) The argument goes on and on, until the MPs arrive with the inevitable question: "Who's in charge here?"

**I**T seems to me the only fair solution is for all services to rate their enlisted men as specialists and noncommissioned officers. The same system can then apply in interservice problems as governs situations within the Army.

**Lieutenant Richard A. Lupoff** is a graduate of Bordentown Military Institute and University of Miami. He was a corporal, MPC-USAR, before being commissioned. He is a training methods instructor at TAG School.

If the Army specialist thinks fast enough he can order the Marine staff sergeant to order the Army corporal to rescind his order to the specialist to leave the Marine alone

While we're on the subject of readjusting enlisted grades among the services, let's look at the present structure of who wears what, and who's a noncommissioned officer.

Of the E-1s, only the sailor wears chevrons—pardon, half a chevron. When he makes E-2 he rates two half-chevrons. The marine and the airman each get one, but the soldier still merits none.

At E-3 the sailor sports three half-chevrons, the marine and the airman each get two stripes, and the soldier has finally earned the chevron of a PFC. But now the marine E-3 is a noncommissioned officer.

When he makes E-4 the airman gets three stripes but still is not a noncommissioned officer. But the sailor is, for he's a petty officer now. The marine is a three-stripe sergeant, while the soldier is either a corporal or an SP3.

Only at E-5 do things finally equalize: the sailor is a petty officer second class, the marine and the airman are staff sergeants, the soldier is a sergeant.

If you think this variance in insignia, prestige and authority among the lower enlisted grades doesn't work to the detriment of that service whose enlisted personnel lack those chevrons, try a little eavesdropping around the old home town when the boys are home on leave.

**T**HE solution seems simple: Have all services adopt an equivalent advancement system for enlisted men. There's no need to destroy military traditions. If the Navy wants to call a man with tracks on his collar a lieutenant, and a man with an eagle a captain, that's its business.

Officers of equivalent pay grade have the same prestige and authority, regardless of their service. It is only fair to do the same for enlisted personnel. And it will stop a lot of barracks grumbling.

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## WHO'S IN CHARGE HERE?

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RICHARD A. LUPOFF**



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When he makes E-4 the airman gets three stripes but still is not a noncommissioned officer. But the sailor is, for

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**Lieutenant Richard A. Lupoff** is Military Institute and University of MPC-USAR, before being commissioned instructor at TAG School.



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FEBRUARY 1957

## PUBLISHER

ARTHUR SYMONS  
Col. Arty-USAR

Assistants: Esther E. Bennett, C. M.  
Pierce, LaRue W. Stump, Frances  
C. Van Dornes

## EDITOR

JOHN B. SPORE

Associate Editor: N. J. Anthony

Contributing Editors: Brig. Gen. Donald  
Armstrong, USA-ret., Brig. Gen.  
Charles S. Harris, USA-ret.

## BUSINESS MANAGER

ROBERT F. COCKLIN  
Col. Arty-USAR

Assistant: Mary F. Grant

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## THE MONTH'S COVER

**Master Sergeant Floyd J. Harris** of the U. S. Army Engineer Research and Development Laboratories uses a walkie-talkie to give meteorological readings from a reflex to the operators of a geodimeter some distance away. The reflex, made up of retro-directive prisms, returns the projected light beams to the geodimeter and measures distance. *Department of Defense photo by U. S. Army Signal Corps.*

**ARMY** is a professional military magazine devoted to the dissemination of information and ideas relating to the military art and science representing the interests of the entire Army. **ARMY** magazine strives to—

Advance man's knowledge of warfare in the fields of strategy, tactics, logistics, operations, administration, weapons and weapons systems.

Advance man's knowledge and understanding of the soldier as an individual, as a member of a trained unit, and as a member of the whole Army; emphasizing leadership, esprit, loyalty, and a high sense of duty.

Disseminate knowledge of military history, especially articles that have application to current problems or foster tradition and create esprit.

Explain the important and vital role of the United States Army in the Nation's defense and show that the Army is alert to the challenges of new weapons, machines, and methods.

Advance the status of the soldier's profession.

—AUSA By Laws, Par. 13 Article 11

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## THE MONTH'S MAIL

### The Logistical Tail?

• Who started this talk about "the logistical tail" of an army, which seems quite fashionable these days? It appears even more fashionable to have ideas as to how it can be amputated. If we are to consider logistical support in anatomical terms, let's examine it carefully.

An animal's tail has three functions: it can be used as a balancing mechanism; over a limited area it can ward off flies; and it is handy for hanging by.

None of these uses seems to fit the military organ. Before we amputate it, we should be sure the thing isn't really like an umbilical cord, which sustains the embryo by transporting to it the sustenance provided by the mother. You can't cut the cord until the youngster appears to be somewhat independent. Even then he must be fed, and if he gets too far away from his mother he may feel he was better off while the cord was attached to him.

I'm not saying that if this is an um-

bilical cord it can't be improved. It can be lengthened, or it can be held in the air. It can be made thinner and lighter, and the sustenance forced through it at high speed under pressure. If you try the last you must be careful of the engineering principles involved. Expediting the signals from youngster to mother won't help much unless the cord functions properly from the delivery standpoint.

Let's not think about cutting it off. Do what you will to the middle, but please keep it attached at both ends.

COL. H. S. PARKER

18 Sumner Place  
Fort Leavenworth, Kan.

### Educational Advertising

• I don't know how much influence you have with the advertising director, but hope you can persuade him to get more advertisements like the one on page 59 of the November issue. This shows an Honest John rocket in launching position in a possible battle situation.

This is the type of advertisement that has enough human interest and informative value to be cut out and tacked on the bulletin board. We did it. Douglas Aircraft gets a bit more publicity, of course, but this is important to me: our cadets have a much better idea of what an Honest John looks like and what it is for.

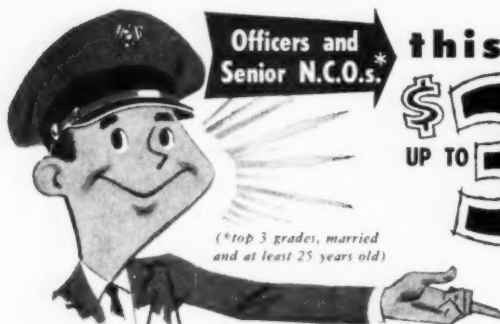
LT. COL. LACHLAN M. SINCLAIR  
St. Thomas Military Academy  
St. Paul 1, Minn.

### Adapters for Training Marksmen

• A recent Cerebration [October] discussed reduced charge ammo for realistic marksmanship instruction. I take exception to it on technical grounds, but there is much value to the notion.

We have an official reduced charge, the frangible round used for tank gunnery. There is another item, the carbine cartridge, which might be set up with suitable adapters, to be used in the rifle.

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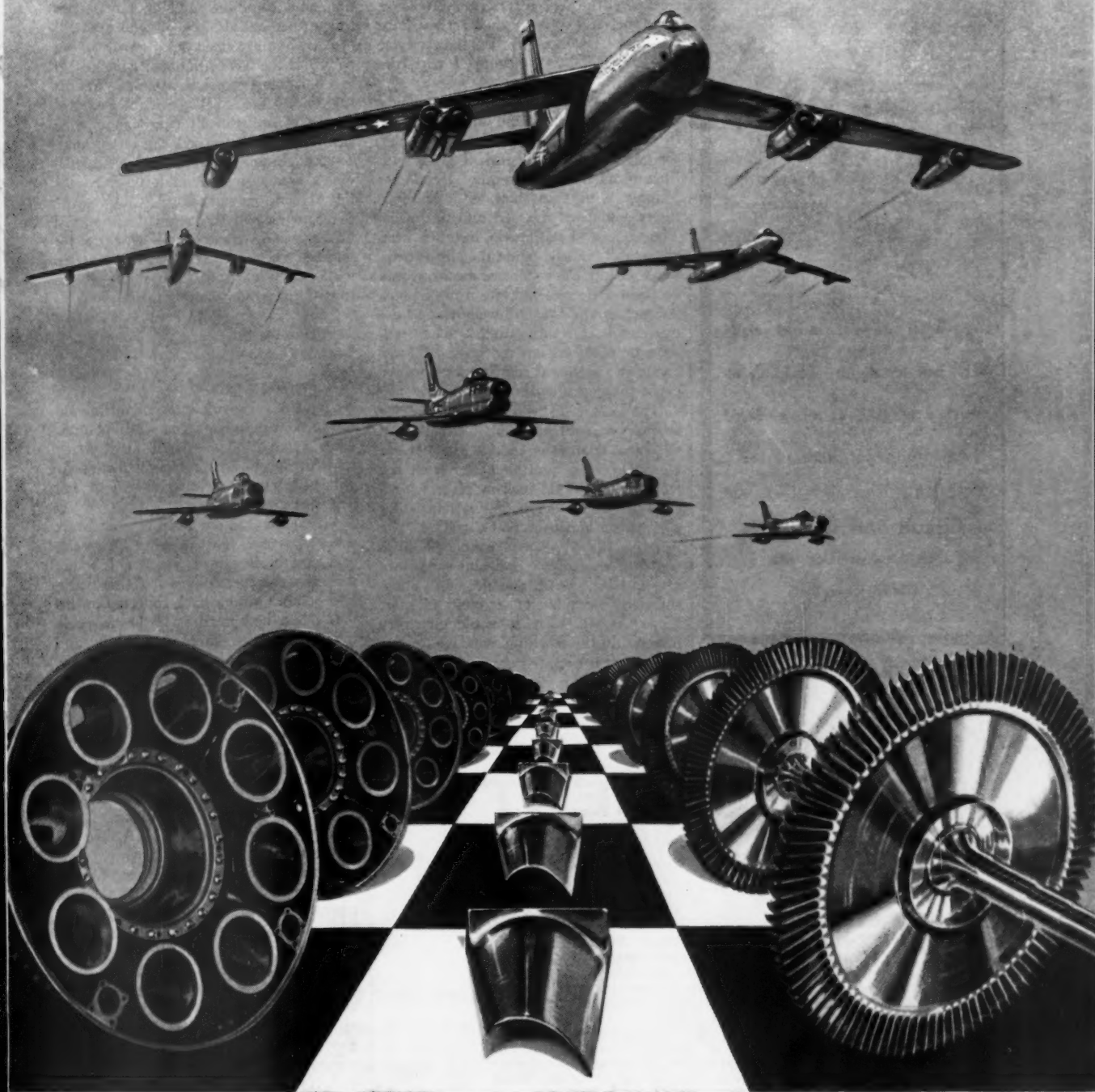
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1529 Eighteenth St., NW  
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resembles the M1 for tactical problems, handling, and so on. Other nations have training rifles as much like their service rifle as possible. We stopped with the 1922M2.

It might be possible to use an adapter with the carbine round and magazine, to obtain semiautomatic fire, reasonable accuracy, and a good deal of noise with little recoil. It would require a chamber adapter, a different bolt, or a bolt-face insert, and parts inserted into the magazine to use a magazine inserted from above and released when the clip is empty. A second, less expensive means, would be to beef up the carbine, using a stock lengthener and fore-end weights, and use them as is, for understudies. They will soon be obsolete, but too good to throw away, and useless as sporting weapons because they are illegal.

The .22 could be used with suitable adapter, in the rifle. The Germans had the Erma adapter in the 98 Mauser. We would have to insert a barrel from the front, which could lock in place with a chamber filler, and be fired from a .22 clip with a blowback bolt assembly. The weight of the weapon would be little changed, the trigger pull and action operation hardly at all, and the sights allow sufficient latitude for zeroing at short range. At 100 yards it would give very fine results in teaching windage correc-

tion, and could be used on any indoor range. It might also cost like heck too.

A Swiss firm displayed a new training device at the 1956 National Matches. It is a bolt insert somewhat like a Daisy air rifle, firing steel balls, and has a good degree of accuracy at close range. The steel balls can be reused, the target holders are cheap. It sounds like a Caledonian's dream, but could it be fixed for the M1 and its successors?

Of course, all this might be rendered useless when we discover a substitute for soldiers. Or the Death Ray. But meanwhile, we might start some of the wheels to turning in Ordnance's think tanks.

WO JOHN P. CONLON

52 Columbia St.  
Newark, Ohio

## Aid for the Traveler

• Joint travel regulations and airline authorizations limit baggage to forty pounds. Let's watch Lt. Col. Alpha make ready for an inspection trip next fall, when he will be required to own and wear not one, but two new suits.

He wears brown civvies with black shoes to save weight, carrying his trench coat and black gloves. He avoids a hat to retain the Joe College look his waistline belies. Quite a stack collected on his wife's best bedspread as he began packing a two-week supply of white and khaki (new shade) shirts, underwear, black socks, black four-in-hand and bow ties. He needs two very expensive caps, one gold-and-green, the other gold-and-blue.

Matching uniforms of green and blue are neatly folded into the bags, quite an engineering feat since the bags are made for thinner civvies. Two hatboxes, M54, or one hatbox, double, M54A, are for headgear.

Alpha isn't ready to leave yet. There's a heap of OG 107 and OG 108 that are essential to give him that field-soldier look. There are combat boots and long o.d. socks, trousers, overtrousers, shirt, sweater, some heavy underwear, field jacket, field overcoat with liner, scarf for branch identification, muffler to hide it as well as to keep him warm, brown gloves with liners, soft field cap with stiffener for that dashing parade-ground look. Three or four bags, plus brief case, with papers and toilet kit, balance on the bathroom scale to score a neat 73 pounds. Airline scales may check it in a bit heavier, since hostesses must weigh less than the counter scales. Without field clothing Alpha still has about sixty pounds.

Please, somebody, do something. The JTR and AR must be changed before untold numbers of kiddies have their piggy banks broken into to pay baggage costs.

LT. COL. A. J. VAN OOSTEN  
G3 Sec, Hq. Sixth Army  
Presidio of SF, Calif.

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## WHAT IS TIME?

Anything that can be postulated is possible, says science—including *timelessness*.

The latest table-talk among the rocket and missile men has to do with the physics (and metaphysics) of photon propulsion: thrust for a space vehicle derived by shooting incredibly concentrated beams of light (photons) from its tail. Result—speeds approaching that of light! Round trips to

distant galaxies could thus be accomplished in a single generation of the crew. Meanwhile, however, the Earth would have passed through a billion years—possibly into cosmic oblivion!

The space-time ratio is increasingly a factor in the calculations of a brand new field of science known as astronautics...Work in this field at Martin is already at the threshold of tomorrow.

---

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## FRONT AND CENTER

### Enlisted Promotion Program

To ease some of the Army's training problems, new methods of weeding out and retraining are to be tried in 1957. The aim, according to Lt. Gen. Walter L. Weible, DCSBERS, is to: "speed up promotions; reduce overages in certain MOSs and retrain surplus people to build up in other MOSs where we are short; and, most important from the long-range aspect, insure that we keep only well-qualified people and give them an opportunity to move ahead."

General Weible said the Enlisted Symposium held at Fort Belvoir last fall emphasized the need for a program that would bring about these results. The plan includes use of Minimum Army Aptitude Area test scores and a physical examination to determine eligibility for reenlistment; to use MOS proficiency tests to evaluate qualification for grade

and MOS, the results of which will be used to promote, reduce, reclassify or possibly eliminate and, so far as possible, upgrade certain jobs which carry responsibility or require greater training.

Soldiers who are qualified for their jobs and who have given good service need not be concerned about their eligibility for retention under the new standards. "These qualified people will have a better chance for advancement as we stop 'carrying' the unqualified. We will have to use sound judgment in administering the new procedures. We will apply the standards to fit individual cases depending upon their merit," General Weible said.

There will be exceptions; for example, men who have been wounded in action and can't meet the physical examination standards for reenlistment because of combat wounds or have other physical

limitations. Men who fail to meet the minimum standard on their Army Aptitude Area test scores if they have performed outstandingly in combat or have otherwise proved their ability under pressure may also be given an exception.

During the Korean conflict promotions came fast because of an expanded Army. When reduction returned after Korea, the Army lost men mostly in the lower enlisted grades with many senior noncommissioned officers deciding to stay. While this was good from the standpoint of keeping trained men, it created a hump the Army will have for another five years. Another factor is that many senior noncommissioned officers transferred to administrative or support-type activities, causing surpluses in such installations and shortages in combat units.

Last February the NCO Specialist Vitalization Program began. This provided for mandatory retirement after thirty years of active service; retirement of personnel who after twenty years of service have reached the age of 55; mandatory reversion of retired soldiers to retired status after completing active-duty tours; relief of AR and NG men in grades E-6 and E-7 at the end of present tours unless they enlist in RA in present grades or accept a reduction to E-5. That program remains in effect, but since the full impact of its provisions won't begin to show until about 1960, the new program has been adopted to accelerate the Vitalization Program.

### DUSA Scholarships

The National Executive Council, Society of the Daughters of the United States Army, offers scholarships to daughters of retired or deceased RA officers. To qualify, an applicant must submit the prescribed application form before 31 March; present evidence of above-average scholastic standing in academic work completed to date; and meet requirements for membership in the Society. Each scholarship has a grant of \$400 for tuition, laboratory fees and textbooks. For more information write Mrs. Edith Morgan Cabel, National Scholarship



At the AUSA meeting last October, Sergeant First Class Floyd Davis, 217th Field Artillery Missile Battalion (Redstone), spoke of the opportunities offered by the Army for skilled missilemen, of some of the lesser attractions of such service and of the counter attractions offered by industry. Early in January he followed his own advice and reenlisted for six years. The oath was administered by his Commanding Officer, Lt. Col. Glenn P. Elliott. The 217th is the Army's first Redstone missile battalion.



Chairman, DUSA, 3600 Connecticut Avenue, Washington 8, D. C.

### OCS for Reservists

Next summer the Army will run an OCS for 320 Reserve warrant and non-commissioned officers, affording them opportunities for schooling like that in the National Guard's OCS. There will be two courses: nine weeks of infantry training at Fort Benning and eleven weeks of artillery at Fort Sill. Applicants must be between 18 years 6 months and 27 years 4 months, have a passing grade in the Army's aptitude test and evidence of satisfactory completion of at least six months' active duty for training with an active component of the armed forces. An alternate to the last requirement is satisfactory participation for two years in an organized unit of the Ready Reserve. Graduates will be examined by a board of officers before being commissioned.

### No More Squeeze Contributions

A new scheme for charity fund-raising drives in federal agencies and the armed forces sets up a fair plan for allowing the donor to contribute only as much as he wants to. Local voluntary agencies that do not come under the Community Chest or the United Fund may not solicit with on-the-job appeals. In military installations overseas, cash appeals with no over-all dollar goals may be conducted only for the Community Chest or other recognized national voluntary agencies, including Crusade for Freedom and CARE; the American Red Cross; and recognized national health agencies. All drives will be conducted along the same pattern. Goals of 100 per cent participation are OK, but appeals must be on an impersonal basis. Only truly voluntary donations will be allowed, and solicitations based on one's fair share. Also, no competitions between units on a dollar basis will be permitted.

Because solicitations will be made on a time table, the new policy allows a soldier to anticipate and plan to meet requests for contributions. The number of appeals will be reduced.

### New Army Air Fields

On 15 December 1956, Edward Gary AF Base, Texas, passed from Air Force to Army control, and was designated Camp Gary, a class I installation. It is now called Gary Army Air Field. Col. Jules E. Gonseth, Jr., is Commandant. Army fixed-wing pilot training will be conducted with Cessna TL-19s by about 225 civilian flight instructors under con-

### GENERAL WEIBLE NAMED

### EXECUTIVE VICE PRESIDENT OF AUSA



Lieutenant General Walter L. Weible became Executive Vice President of the Association of the United States Army on 1 February, the day after his retirement from the U. S. Army. Announcement of the appointment of General Weible was made by Mr. John Slezak, President of AUSA.

As Executive Vice President, General Weible is the senior member of the staff at Association headquarters.

In announcing the appointment Mr. Slezak said: "The Council of Trustees of AUSA believes it was very fortunate to be able to obtain the services of General Weible as Executive Vice President. His long service in the Army in positions of great responsibility, his proved interest in the Association to which he has devoted much time and effort, and his wide acquaintance with leaders in industry and Government led the Council of Trustees to the conclusion that General Weible was the best possible choice for the task of directing AUSA during its present expansion in membership, usefulness and prestige."

General Weible, whose last assignment was Deputy Chief of Staff for Personnel, Department of the Army, was President of the Association for almost two years preceding the reorganization of the Association which took effect on 27 October 1956. During General Weible's presidency, AUSA almost doubled its membership and embarked on a vigorous program of support of the U. S. Army. Highlights of this program were the two annual meetings, at both of which General Weible presided.

General Weible said that any realignment in the duties of present staff members would be deferred until he became thoroughly familiar with the day-to-day operations of the national headquarters.

tract. The first class of about 100 students reported to Gary early in January. The student load will gradually build up to a level of about 600 in training, with a scheduled input of nearly 1,600 a year. Each class will be for eighteen weeks. The permanent military complement numbers 45, with 600-700 civilians employed by the civilian contractor.

The Army picked up another station in October, when Phillips Field, at Aberdeen Proving Ground, became Phillips Army Air Field.

### Gyroscope Plans

Beginning in November 1957, the 4th Armored Division, Fort Hood, Texas, will swap stations with the 2d Armored, now in Germany.

The Army has also named these non-divisional units to rotate to Germany in 1957 and early 1958: Hq. & Hq. Det., 85th Chemical Battalion, Fort McClellan, Ala., and similar units of the 1st Chemical Battalion (15 July 1957); the 546th FA Battalion, Fort Lewis, Wash., and

the 519th FA Battalion (15 October 1957); the 2d Armored Cavalry Regiment, Fort Meade, Md., and the 3d Armored Cavalry Regiment (15 February 1958); the 36th FA Battalion, Fort Sill, Okla., and the 291st FA Battalion (15 February 1958); the 269th FA Battalion, Fort Carson, Colo., and the 775th FA Battalion (15 February 1958).

### Overseas USAR Schools

For the first time since its inception, ComZ Military District can conduct USAR schools in France, open to all active reserve officers of all services who are not on EAD and who meet minimum requirements.

The series of classes, to be held in Paris and Orléans, will consist of 24 paid training assemblies a year and a 15-day active-duty tour. Credits gained by attendance will be applied toward retirement time. The Orléans courses have subjects common to all branches which are usually taught in the advanced AG course. The Paris branch will offer ad-

## General Officer Shifts

Maj. Gen. Donald P. Booth to DCSPERS . . . Maj. Gen. Riley F. Ennis to Hq. Third Army . . . Maj. Gen. Paul L. Freeman, Jr., to WSEG . . . Maj. Gen. George W. Hickman, Jr., to TJAG . . . Maj. Gen. Herbert M. Jones to TAGA . . . Maj. Gen. Stanley W. Jones to ATJAG . . . Maj. Gen. Robert V. Lee to DTAG . . . Brig. Gen. Roy T. Evans, Jr., to Army-AF Exchange Service . . . Brig. Gen. David W. Gray to USAR-EUR . . . Brig. Gen. John E. Leary to CS, KMAC . . . Brig. Gen. Dale B. Ridgely to Brooke AMC . . . Brig. Gen. Peter Schmick to 45th AAA Brigade . . . Brig. Gen. Thomas F. Van Natta to 1st Armored Division . . . Maj. General James F. Collins to office of DCSPERS . . . Brig. General Charles H. McNutt to Engineer Center, Ft. Belvoir, Va.

## Retirements

Gen. Alfred M. Gruenther . . . Maj. Gen. Leslie D. Carter . . . Maj. Gen. John A. Klein . . . Brig. Gen. Harold W. Glatly . . . Brig. Gen. Theodore T. King . . . Brig. Gen. Harry O. Paxson.

vanced courses for Infantry, Engineer and AG career fields. Interested Reserve officers may learn more by writing: Army Reserve Advisor for France, 32 Rue Marbeuf, Paris, or to the G4 Division or the QM Division, Hq. ComZ, Orléans.

## Wider Incentive Program

The Transportation Corps now offers cash awards from welfare funds for the three outstanding adopted suggestions it receives each calendar quarter from military personnel. While suggestions previously were welcomed, there was no means for rewarding their efforts.

At the end of each quarter three outstanding adopted suggestions by military personnel at each TC installation throughout CONUS will go to OCT for consideration. The Incentive Awards Committee there will judge entries, awarding \$100 for the top suggestion, \$75 for the next best, \$50 for the third. Awards under the new program, which in no way precludes holding of similar contests elsewhere, will be in addition to any earned locally.

## The Army Takes On Another Job

Until 1 January 1957, the development of medical supplies and equipment for the armed forces was a joint operation, responsibility for its direction rotating among the three services. On that day the Army's Surgeon General took over the job.

The Medical Equipment Development

Laboratory at Fort Totten, N. Y., will receive approved projects from and make recommendations to the Armed Services Medical Material Standardization Committee. Most of the Laboratory's work concerns design of new or redesign of existing medical equipment. Its machine shop can turn out prototype models of any piece of medical field equipment.

The Army's portable electrocardiograph was designed and built there. Like many items, a commercial one was redesigned so that it could operate on the different line voltages and frequencies found overseas, and to make it shockproof in a watertight shipping container.

Another typical development is the improved blood-shipping container—a cardboard box that eliminates tin, steel and rubber, and which when packed weighs only 36 pounds and costs only \$4.80, against 120 pounds and a cost of \$36 for the old model.

## Identify the Army

Circular 360-7, issued in December, requires that all Army vehicles and equipment on public display be conspicuously marked "U. S. Army," except that aircraft will be marked "Army." Markings must be large enough and be in spots that can readily be seen at normal viewing distance and under normal conditions. Such markings will then clearly appear in any photographs taken of such equipment, thereby insuring appropriate credit to the Army and the public's prompt and lasting association with the Army of military vehicles and equipment on display.

## Duty Tours of ROTC Grads

Early in January, DA announced that not all of the 14,000 ROTC graduates commissioned between 1 May 1957 and 30 April 1958 would be ordered to active duty for two years. Those selected will go on AD within twelve months of ap-

pointment, but not later than 30 June 1958. Those not detailed for two years will be ordered to six-month training tours.

Selection of those with certain critical academic background will be made in the Pentagon, from GMS students as well as those being trained in branch units. The rest will be chosen by major commanders in CONUS and the territories. Main criterion will be the Active Army's needs, but each officer's personal preference will be considered where possible.

Distinguished Military Graduates selected for RA appointment and who indicate their intention of accepting, will be ordered to active duty immediately after graduation if they so desire.

ROTC graduates appointed after 9 August 1955 who did not incur a service obligation before 10 August 1955, and who are ordered to AD for two years, must participate satisfactorily as members of the Ready Reserve in their commissioned status for an additional three years. After completing the total years of service they will be transferred to the Standby Reserve unless they agree to remain in the Ready Reserve. Those appointed after 9 August 1955 who did not incur a service obligation before 10 August 1955, and who are ordered to six-month training tours must participate satisfactorily as members of the Ready Reserve until the eighth anniversary of date of appointment.

Graduates selected for the six-month program must agree to join a Ready Reserve unit after completing active duty for training, and must participate satisfactorily in such training as may be required of the unit to which assigned. Officers who cannot join a unit because of distance may do 17 days' active duty for training each year and such additional reserve duty training as the Army requires.

## CHANGES IN THE DEPARTMENT OF THE ARMY



MAJ. GEN.  
DONALD P. BOOTH  
DCS for Personnel



MAJ. GEN.  
GEORGE W. HICKMAN, JR.  
The Judge Advocate General



MAJ. GEN.  
HERBERT M. JONES  
The Adjutant General

## The New Divisions

The timetable for the reorganization of the U. S. Army became clearer at the first of the year with the brief announcement that the reorganization of infantry into the Pentomic divisions would begin early this year. The announcement didn't say so but everyone seemed agreed that the first infantry outfit to be reorganized would be the 1st Infantry Division at Fort Riley.

### Infantry Division

The reorganization of infantry into Pentomic divisions follows the pattern that has been generally described and talked about within the Army for a couple of years or more. Instead of three regiments the division will have five smaller units, probably to be called combat groups. Battalions are eliminated. The regiment or combat group will have four rifle companies, an artillery mortar company, and a headquarters and service company. Rifle companies at full strength will be considerably larger than present companies. The full strength of the regiment will be considerably less than the present regiment because of the elimination of tank and heavy weapons companies, medical company, battalion headquarters and other administrative and logistical manpower.

Division artillery will be in two battalions. One will be a 105mm howitzer battalion of five firing batteries and the other a battalion of four firing batteries. These latter batteries will give the division its heavy punch. Two of them will be armed with 155mm howitzers, one with the Honest John rocket, and the fourth with the 8-inch howitzer. This is the first time a piece as large as the 8-inch howitzer has been organic to a division.

The division will have engineer, signal and armored reconnaissance battalions. Other supporting forces will be organized into a Support Command. New in it are an Aviation Support Company, an Administrative Services Company and a Transportation Battalion. The Support Command will also have the medical, aviation, ordnance, and quartermaster companies.

Total strength of the division will be about 13,750—some 21 per cent less than the present infantry division strength of 17,455.

### Armored Division

Little change will be made in the structure of armored divisions. The principal one being in artillery. Division artillery of the armored division

will be the same as the artillery of the infantry division, described above.

### Airborne Division

The 101st Airborne has, of course, been reorganized for several months. Early in January it began its most ambitious test yet with Troop Test Jump Light at Fort Bragg, N. C., involving the 187th Airborne Combat Group. The test was designed to evaluate the mobility, flexibility, fire support, command control and all around capability of the airborne combat group in an airborne assault operation.

Statements by proponents of the new airborne organization say that the versatility of the organization is such that its doctrine can be expanded to include these nine concepts:

(1) *The employment of elements of the division in the assault in widely separated areas on missions independent of the remainder of the division, or only partially dependent upon it, as opposed to sole employment in one general area.*

(2) *When elements are so employed in widely separated areas, a reserve will be situated in the relative safety of the departure area ready for delivery in the airborne assault role should the situation so require.*

(3) *Inclusion for the first time of the specific mission of conducting operations to deny, disrupt, or delay: reinforcements, withdrawals, or support of enemy forces.*

(4) *Inclusion for the first time of strategic and tactical reconnaissance missions, including the successive re-lift and shifting of forces in the enemy's rear.*

(5) *Greater emphasis on development and use of multiple air-landing facilities in the airhead:*

- ¶ To permit execution of the mission
- ¶ To land supplies fully forward
- ¶ To reduce service troop requirements
- ¶ To speed evacuation
- ¶ And to reduce atomic vulnerability

(6) *The shifting of forces within the objective area by organic aircraft.*

(7) *The use of smaller serials and multiple troop carrier columns.*

(8) *The habitual employment of the reconnaissance troop forward over dangerous avenues of approach on longer range intelligence type missions.*

(9) *Capitalization on organic atomic capability to:*

- ¶ Destroy and break up enemy formations at a distance.
- ¶ To cover gaps between key localities in the defense system.



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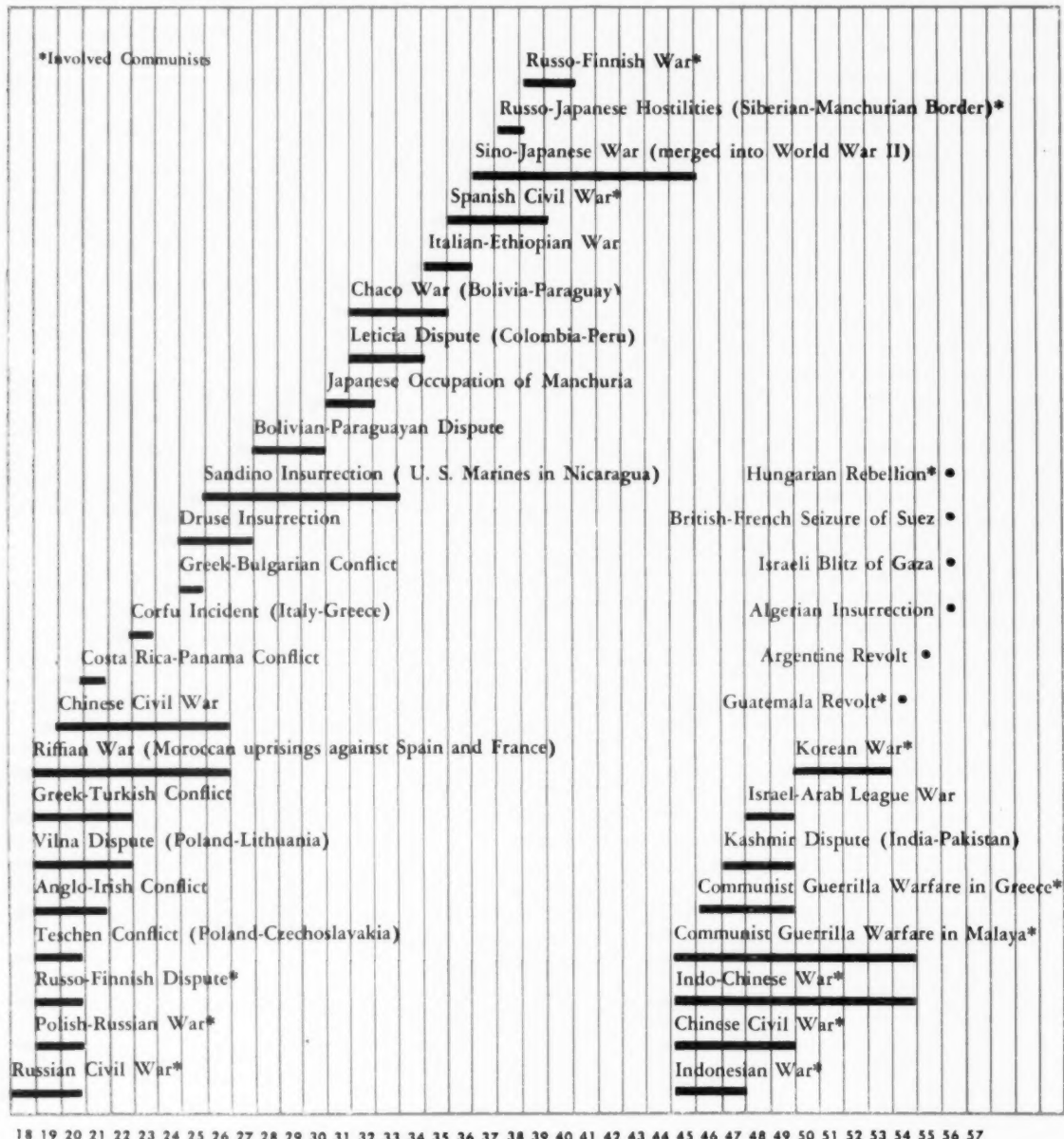
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## THE AGE OF TOTAL WAR?

The age of total war has had a full share of armed conflicts waged for limited objectives and with limited means. This chart shows that in the 39 years between

1918 and 1956 there were at least 37 less-than-total wars. The black lines under the names indicate the approximate duration of each conflict.







## THE **SOUND** OF PROGRESS

*What is the sound of Progress?* It's the whine of a jet... the busy hum of a computer... the deep roar of a rocket engine... the swish of helicopter blades. But the most important "sound" of all is mute... that of creative minds at work, solving tomorrow's problems today.

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## THE ARMY'S MONTH

### *Ground Rules for Controversy*

One of our readers has suggested that we make a study and publish our findings on what he called the "ground rules for inter-service controversy." "It seems to me," he said, "that since the establishment of the Department of Defense there have been so many instances of Pentagon officials or uniformed officers appealing over the heads of constituted authority and in violation of regulations to some degree that it might now be possible to codify the system and show wherein a member of a service can, if he is courageous, engage in this kind of activity without placing his neck on the block."

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This is also a matter of politics. What you, a nonpolitical soldier, might be able to say publicly during a year when there are no national elections, you might not be able to get away with during an election year. Politicians have a natural distaste for "non-political" sniping from the flanks when they are heavily engaged with the enemy party.

As we said, a thorough study of the problem would certainly be intriguing but codification is probably impossible. Congress has said, for example, that military officials testifying before its committees should feel free to give their honest opinions. No one can quarrel with that for certainly Congress is entitled to and must be fully informed if it is to legislate intelligently. But at the same time who could find fault with the military man who hedges a little when to be blunt would make him unpopular with his superiors? Legally he should speak out as plainly as possible. But he knows that as a practical matter it would be better for him to speak softly—in the hope, perhaps, that he might have a chance to speak again. Unfortunately human beings tend to have memories like elephants, especially when they are crossed.

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At the time this issue went to press the President had not delivered his Budget Message and so the specific details of how much money the Administration plans to request for the Army in Fiscal 1958 and for what purposes were not known.

Reports in the Pentagon during the first ten days of the New Year were that the defense portion of the budget would call for less money for the Army and for a slight reduction in Army strength in Fiscal 1958. Congress undoubtedly will want to know how another cut in the Army can be justified in view of the President's message on the Middle East (and the implication that a mobile task force might be necessary to deter Soviet penetration in that area), and the delicate situation that exists in Eastern Europe.

An important aspect of the steady reduction in Army appropriations over the past few years has been obscured by the concentration on new kinds of weapons and new organizations. Except for aircraft, missiles and some advanced electronic equipment, the Army has been largely living off

hardware produced under contracts authorized during the Korean Conflict. If not this year certainly by 1958 there should be a long look taken at the state of Army stocks of tanks, conventional artillery, trucks and other matériel. This kind of stuff gets out of date fast and the prospect that Americans might be committed to battle with weapons inferior to those of the enemy is appalling. Neither the U. S. nor its allies can afford to be second rate. If war should come the only prospect for victory lies in the superior quality of western armies and armament.

### *Withering Away of TAC*

If you have been watching you will have already detected what is now plain as can be: Tactical Air Command (TAC) is withering away. The process is becoming accelerated; for example, the Department of Defense recently assigned TAC's heavy transport wings (Douglas C-124's) to MATS and you can infer from the same announcement that TAC's medium transports (Fairchild C-119's and 123's and Lockheed 130's) may soon go the same way.

TAC's other roles—interception and close support, for example—are being taken over by Army missiles, both surface-to-surface and surface-to-air. That there would be a decline in TAC has been apparent for some years but the accelerated pace is rather surprising. How much of this is due to Air Force emphasis on speed and altitude with consequent addiction to faster and more powerful aircraft, rather than concentrating on missiles is hard to say. It is interesting to note though that this very addiction has resulted in the development of fighter aircraft that can carry nuclear weapons and have a strategic capability. So much so indeed that now it is reported that SAC is proposing that these long-range, high-flying aircraft be incorporated into it. The justification is good. Certainly the USAF doesn't need two SAC's nor even one and one-half.

Truth is, of course, that TAC is only the first of the Air Force major commands to become a victim of technological unemployment. In time Air Defense Command and SAC itself will follow. We have the word of high Air Force spokesmen for that. In at least five years, one of them said recently, half of the USAF will be missiles and the other half (the withering away half) will be manned fighting vehicles.

Manned air transportation will be around for a long time though. This means MATS or its equivalent. It means too (and for the same reasons) the growth in usefulness of the kind of aircraft the Army wants—STOL and VTOL varieties, flying cranes, and one-man and one-squad river jumpers and mountain hoppers.

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### *Second Rate is too Expensive*

At the time this issue went to press the President had not delivered his Budget Message and so the specific details of how much money the Administration plans to request for the Army in Fiscal 1958 and for what purposes were not known.

Reports in the Pentagon during the first ten days of the New Year were that the defense portion of the budget would call for less money for the Army and for a slight reduction in Army strength in Fiscal 1958. Congress undoubtedly will want to know how another cut in the Army can be justified in view of the President's message on the Middle East (and the implication that a mobile task force might be necessary to deter Soviet penetration in that area), and the delicate situation that exists in Eastern Europe.

An important aspect of the steady reduction in Army appropriations over the past few years has been obscured by the concentration on new kinds of weapons and new organizations. Except for aircraft, missiles and some advanced electronic equipment, the Army has been largely living off

hardware produced under contracts authorized during the Korean Conflict. If not this year certainly by 1958 there should be a long look taken at the state of Army stocks of tanks, conventional artillery, trucks and other matériel. This kind of stuff gets out of date fast and the prospect that Americans might be committed to battle with weapons inferior to those of the enemy is appalling. Neither the U. S. nor its allies can afford to be second rate. If war should come the only prospect for victory lies in the superior quality of western armies and armament.

### *Withering Away of TAC*

If you have been watching you will have already detected what is now plain as can be: Tactical Air Command (TAC) is withering away. The process is becoming accelerated; for example, the Department of Defense recently assigned TAC's heavy transport wings (Douglas C-124's) to MATS and you can infer from the same announcement that TAC's medium transports (Fairchild C-119's and 123's and Lockheed 130's) may soon go the same way.

TAC's other roles—interception and close support, for example—are being taken over by Army missiles, both surface-to-surface and surface-to-air. That there would be a decline in TAC has been apparent for some years but the accelerated pace is rather surprising. How much of this is due to Air Force emphasis on speed and altitude with consequent addiction to faster and more powerful aircraft, rather than concentrating on missiles is hard to say. It is interesting to note though that this very addiction has resulted in the development of fighter aircraft that can carry nuclear weapons and have a strategic capability. So much so indeed that now it is reported that SAC is proposing that these long-range, high-flying aircraft be incorporated into it. The justification is good. Certainly the USAF doesn't need two SAC's nor even one and one-half.

Truth is, of course, that TAC is only the first of the Air Force major commands to become a victim of technological unemployment. In time Air Defense Command and SAC itself will follow. We have the word of high Air Force spokesmen for that. In at least five years, one of them said recently, half of the USAF will be missiles and the other half (the withering away half) will be manned fighting vehicles.

Manned air transportation will be around for a long time though. This means MATS or its equivalent. It means too (and for the same reasons) the growth in usefulness of the kind of aircraft the Army wants—STOL and VTOL varieties, flying cranes, and one-man and one-squad river jumpers and mountain hoppers.

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## *Unexpected Dividends from My 35¢ Investment in Mr. Bernard Baruch*

**CAPTAIN JOHN F. FORREST**

**T**O a company, an inspection is an operation like brushing your teeth—annoying but necessary. When I was a lieutenant I was commander of a Fort Jackson show-piece company that had many important visitors. So I got used to inspections.

One day the news swept through my company that one of the best known and respected of living Americans—Mr. Bernard (Barney) Baruch—was coming to inspect it. Here was something special. No one this important had ever inspected us.

My company was the cadre for a school where officers and noncommissioned officers assigned to the 8th Division learned the standards demanded by the division commander. As the division's model, our personnel and equipment were the best available. A lieutenant colonel commanded this school, but the company was mine, and I was proud of it.

Any inspection puts you on your mettle. But if you are a model you have a reputation to uphold. I determined that my company would fairly gleam.

Fooling inspectors is part of the Old Army Game. Fooling civilians is easier because they don't know what to look

for. I blithely schemed how I would fool the astute Mr. Baruch.

We carefully planned a guided tour. We would herd Mr. Baruch along like a sheep from one good point to another, avoiding weak and average points. I might not score a knockout, but I'd dazzle him with fancy footwork.

We worked hard. Each man in the company was as anxious as I to make a good impression.

**T**HE day before the inspection we rehearsed the whole tour. I played Baruch. First stop was the messhall. Cooks in starched whites stood at attention beside spotless ranges. Cutlery gleamed. Tables were so clean it was a shame to eat off them, for you could eat off the floor.

I knew that Mr. Baruch is a tall man, so I inspected the tops of everything. I could find nothing wrong.

The company area dazzled. The supply sergeant had "found" paint for the fences we had erected. Hedges were cut straight and stood as true as a prize drill team at attention. I believe we cut everything that grew and painted everything that couldn't be moved. Even company streets were swept so the South Carolina dust would settle in straight lines. No millionaire's estate ever got better care; not even Mr. Baruch's. When it was all done we did it again, and added an extra touch for good measure. One thing about inspections: they get things cleaned up and keep expensive Government property in shape.

Our dayroom was especially good, with every corner dusted. Every door-knob was polished. The latest issues of magazines were laid out. We distributed mail in this room, and to keep men from waiting in line, had installed an ingenious system of wired boxes so that a soldier could see, through the wire mesh, if he had mail.

A corner of the dayroom was set up for writing, with stationery and envelopes on hand. As part of the Army's character guidance program, in another corner we had a miniature altar with Bibles around it. I was sure Mr. Baruch would be impressed by the mail arrangement and the altar. Accordingly, I prepared a spiel that emphasized these strong points, for the orderly to deliver as he led our VIP around. The orderly rehearsed it over and over. On the day of my dry run he had it letter perfect. The only fault I found in the dayroom was at the altar. Protestant and Catholic literature were there, but no Hebrew. And Mr. Baruch's religion is Hebrew. A quick trip to the chaplain corrected that.

The barracks was the final stop. Steel cots were Spartan in their orderliness. Shoes and windows shone. Sinks in the latrine had that blue-white sparkle that only hard rubbing produces. There was a measured exactness about the whole building.

We were ready for Mr. Bernard Baruch.

**D**ON'T think my intensive preparations were exclusively promoted by

**Captain John F. Forrest, Infantry** (USMA 1949) served with the 1st Cavalry Division in Korea, then with the 8th, 28th, and 5th Infantry Divisions, mostly in command and S3 positions. He is now on duty at Hq. USAREUR.

anxiety over Barney Baruch. I was curious about him as an Elder Statesman, but not worried. It was the officers who would accompany him, my bosses, I aimed to please.

My complacency about Mr. Baruch's ignorance was rocklike. It never occurred to me that he might find something wrong, for my inspection revealed perfection. I was a young man and had never heard of Mr. Baruch's system of physically inspecting a place of business to determine its efficiency, before he invested in it. Each of his millions of dollars testifies to his skill as an inspector. By now the gods of fate must have been choking with laughter, for with bovine satisfaction I awaited his arrival.

A government sedan drew up and my division commander and a civilian alighted. You can't mistake Barney Baruch. The snow-white hair, interested face and twinkling eyes were as I had seen them in thousands of pictures. He was taller than I expected and healthily erect, with a spry step. I was introduced and got an appraising glance. We entered the messhall for lunch.

We had the same food served every soldier on the post that day. I wondered how chili and rice would strike a doubtless jaded palate. To my surprise Baruch ate it all, and remarked that it was "good chow." This was the first of a long string of surprises.

Table talk covered a wide field: Congressional committees, UMT, horses, bird shooting. Someone mentioned the stock market, probably in the hope that some of Mr. Baruch's Midas touch might rub off. But he warily stuck to generalities, although he offered the advice that "A housemaid in New York could readily invest enough in ten years to retire and live comfortably on the dividends." I concluded that here was a wise and pleasant man, interesting, friendly—but an easy mark.

**W**HEN we left the table to begin our tour I learned how smart he really was. He gestured to a group of men eating nearby. "If you don't mind," he said, "I'd like to start this visit by talking to those soldiers over there."

I had to agree, of course, but it made me uneasy. There was no telling what they'd say about our school. We had worked them pretty hard. The prepared tour of the spotless messhall faded like a dream. The general looked at the colonel; the colonel looked at

me; I kept looking straight ahead.

"You know," said Mr. Baruch, "these men can talk much more freely if there aren't any officers standing near. Would you mind waiting here?"

Ha! That did it! My scheme to bamboozle Barney Baruch was shot to hell. He had taken the wise man's course of examining the product rather than listening to the salesman. I waited nervously, watching him, long legs crossed, chatting cheerily with the group. The soldiers, awed at first, became talkative and friendly.

At last Mr. Baruch left them. He made no comment about his conversation. We walked through the kitchen routinely and no one paid much attention to it. Mr. Baruch had already found what he wanted to know about the kitchen. When we left it he said, "You serve good chow here, but it would be better if you'd heat the trays first so the cold metal wouldn't drain the heat away."

He was dead right, but the idea hadn't even occurred to me. I was so surprised and impressed that I forgot to collect the thirty-five cents from him for his meal.

We walked to the dayroom. The orderly escorted Mr. Baruch, reeling off his rehearsed spiel like a sideshow barker. My confidence began to return. At the altar Baruch's long fingers caressed the Hebrew Bible. I felt a surge of triumph and glanced at my CO.

"Soldier," Mr. Baruch said to the orderly, "does anyone ever use this altar, or look at the books?"

That floored me, for I didn't know.

#### HIGH THE GLASS!

##### *An Artilleryman's Toast*

If Freedom, dear bought for you

In battle, hard fought for you

And Honor mean aught to you,

The Infantry—

LT. LLOYD E. HOEYE

I had been in that dayroom every day for months, and never noticed. I was thankful when the orderly replied that they were used occasionally, and that one officer prayed there each morning. As we left, Mr. Baruch remarked to the general that the orderly was a smart boy. He looked at me but said nothing.

This was an odd inspection. The company was good and our distinguished visitor was finding it good—

but not because of the things I'd planted for him. I was learning things about my own company as each moment passed.

**W**E walked over to the barracks. I knew it was perfect for I'd checked and rechecked it. The barracks was perfect. As we strode down the aisle between rows of bunks every article was in its proper place. Not a spot of dirt or a speck of dust.

"I'd like to see a latrine," he said. I must have glowed with relief. I was pleased. Our latrine would knock his eyes out.

"Certainly," I replied. "It's back by the door where we came in."

"Oh," said Barney. "Well, I don't like to backtrack. Couldn't we go to the latrine in the next barracks?"

He had me again! As heartily as a wet kitten I said, "Yes, Sir."

My heart trailed the floor as we walked into the latrine next door. A chubby young soldier cleaning sinks quivered to attention as we entered.

Mr. Baruch glanced around while I studied my shoe tips. I felt eyes boring into my side but I didn't dare look at my commanders. Mr. Baruch ran his hand around the inside of a sink. It came away coated with a dirty white scum. He looked at me; the general looked at me; the colonel looked at me. My shoe tips became more interesting.

"That's cleaning powder isn't it?" Barney asked.

"Yes, sir," replied the orderly. "I just put it on the sink."

"I'm glad to see that. So many people just swipe a sink with a damp cloth and call it done."

My shoe tips lost their fascination and I could face the world again.

Our VIP ended the inspection then. He said he'd seen enough to know this was an excellent company. After thanking me he got into the car with the general and away they went.

I was thunderstruck. This civilian had seen things in my company I'd never noticed before. I'd learned more about looking for things in those few minutes with Barney Baruch than in all my previous service. He looked for results rather than methods. I've used his system ever since.

Mr. Bernard Baruch's visit had cost me some anxious moments and the thirty-five cents I had to shell out for his lunch—a small price to pay for an investment in wisdom.



# Organization and the Principles of War

LIEUTENANT COLONEL WALTER D. SHORT

If our new tools are to meet the test of war successfully we must follow sound principles in fitting them into our combat organizations



**C**HANGES in weapons and transport inevitably affect the structure and composition of armies. Just how the Philistine army reacted to David's success with his sling is now lost in the records of a long-buried O&T division. We have some information concerning Roman reaction to Hannibal's elephants and of the great augmentation of the infantry elements of the feudal levies of France that resulted from the lessons inflicted by the firepower of English archers at Crécy. Napoleon was probably the first Great Captain to fully appreciate the value of artillery and of well-organized logistical support. In his creation of the division, Napoleon saw a need for an organization of combined arms at a level lower than that of the field army. The size of his divisions is not important today, but his concept of a unit which included organic infantry, artillery, engineers—hard-hitting mobile forces—and essential technical services remains valid. Our present infantry and armored divisions owe their organizational concept to Napoleon and much of their component parts to those who in-

## WHAT IS THE MISSION?

Before you can devise combinations of men and weapons you should know what you will be expected to do with the finished product

roduced mass production into U. S. industry.

Today, our organizational planners are busily revising tables of organization and equipment to cope with the awesome brain child of the nuclear physicists. Tomorrow, aeronautical and ballistics scientists, biologists and chemists may force still more changes in our combat units. However, if we have correctly deduced the principles of war from our study of history, they will remain valid regardless of the organizational and tactical introductions resulting from scientific progress. Using the principles as a basis, it should also be feasible to develop fundamentals for the organization of combat units which may be helpful in incorporating the new weapons, communications, and transport at our disposal.

### OBJECTIVE

FM 100-5 and most other discussions of the art of war start with the principle of the Objective. So far as the combat unit is concerned, its objective, or mission, must come first. It would be a grave error to devise tables of organization and equipment before we decided on a mission for our creation. After we know what our mission is we can organize our unit, train it, and then test it on maneuvers to see if it meets the requirements. Like any other single equation, only one unknown can be solved at this step. The final organization should be approved only as a result of a valid maneuver employing a sound tactical concept and well-trained troops. If a new weapon allows us to change the mission of an infantry or armored division—that is, gives or forces a greater variety of methods of tactical employment of the unit—then organizational changes are likely to be in order. But our first fundamental must be: the mission of a unit must determine its organization.

### ECONOMY OF FORCE

The effort required to produce and sustain a modern army makes Economy of Force even more applicable today. We must organize divisions which can execute a maximum variety of missions under varying conditions of terrain and

**Lieutenant Colonel Walter D. Short, Infantry**, first broke into print with "Combat Sight Picture" in the *Infantry Journal* for September 1945. Presently he is an infantry tactics instructor at Fort Sill.



climate. An example of the results of the development of overspecialized divisions may be found in the early stages of World War II when the 4th Infantry Division was motorized. Maneuvers revealed that the bulk of the division's infantry transport was unused once action was joined; the troops could not fight from their trucks. Eventually the division was dismounted and made a great name for itself in the European battles. Economy of Force fundamentally requires that a combat unit should be capable of employing the preponderance of its organic equipment and manpower in the accomplishment of all its missions. A piece of gear that the unit rarely uses should not be organic to it. This fundamental, when weighed against weather and terrain in various parts of the world, as well as the defensive capabilities offered there by a prospective enemy, has so far mitigated against any so-called "universal" division. Imagine the quantity of superfluous equipment and personnel of a "mechanized" division were it operating in Korea! It is well to remember that it is far easier to attach needed elements to a division than it is to convince its commander that he

can do without certain units for the duration of a campaign in a given theater.

Another application of the principle of Economy of Force lies in the field of self-sufficiency. It is axiomatic that a combat unit requires command, reconnaissance, fighting, and service elements, but in what proportion? The command features will be discussed under Unity of Command, while reconnaissance elements will be considered as related to the principles of Security and Surprise. The greatest differences of opinion perhaps exist in the field of service. Our allies have frequently criticized our elaborate service support. Ice cream platoons, bakery units and streamlined mobile PXs have few foreign counterparts, although it is claimed they pay for themselves in increased morale. I shall not argue the level of lavishness which we must provide, but this can be said: Every man in the service elements of a combat unit is a potential fighter in an emergency while those in the Communications Zone and army rear areas will rarely be of any immediate value in a combat role. Accordingly, the problem is to increase the self-sufficiency of the com-

## THE TESTING OF



1941: Motorized Infantry

1952: Armored Infantry

1956: Sky Cavalry



## COMBAT ORGANIZATIONS

bat elements if we are to gain the potential combat strength of a service element in a crisis. It must be recognized, however, that when service operations are overly decentralized, inefficiency can exist in the form of excess capacity of machinery, or else the inability to use mass-production techniques for repair and maintenance. Further, many services require heavy transport and equipment of limited mobility, which can be most efficiently employed at a static installation. On the other hand, to transport each piece of equipment back and forth from the front to a service unit requires additional manpower, fuel, and transportation. A combat unit must have all the essential organic services that it can fully use and which will not decrease mobility, or interfere with the accomplishment of its mission. In an atomic situation the dispersion of service installations created by application of this fundamental could be invaluable.

### MASS

Mass is closely allied to Economy of Force. To truly apply the principle of Mass there can be few units unsuited to the combat at hand. It is also re-

lated to Maneuver because our mass of combat power must be applied at the decisive place—which means movement. As Major General George E. Lynch, Commanding General, 3d Infantry Division, stated at the Infantry Instructors' Conference at Fort Benning in June 1956: "The existence of tactical atomic weapons has reduced the security which mass used to give a commander." In other words, massed troops are excellent atomic targets, and hence, a commander's security is reduced when his units overly concentrate for long periods of time. So far as organization is concerned, if we are to apply the principle of Mass on today's battlefield, a combat unit must have command, communications and fire-support elements capable of controlling and supporting dispersed operations. It must be mobile and flexible enough to mass quickly and efficiently at the decisive point.

### MANEUVER

Applying the principle of Maneuver leads logically to a further discussion of mobility. We have already mentioned mobility in developing organizational fundamentals from the prin-

ciples of Mass and Economy of Force. However, if we are to be capable of offensive action—the primary ingredient of victory—mobility cannot be overstressed. Basically, the overall organic mobility of a unit must equal the fighting mobility of its principal combat elements. Any weapons which are essential to it must be transportable. Conversely, weapons and vehicles which are required only occasionally should be attached rather than being organic. From the fundamental, it might appear that full use might not be made of modern methods of transport. This is not so. The key word is "organic," because our units must be able to move rapidly, out of contact with the enemy, from one area to another. (Armored units which have the primary mission of fighting from their transport are naturally excluded.) Thus, an infantry unit must be able to move by foot, by motor and, in the near future, by air with no change in organization. Likewise, the long-range goal of armored formations should be toward air transportability.

### OFFENSIVE

The Offensive ranks high on any

listing of the principles of war. Only through offensive action can decisive results be obtained. The square infantry division of General Pershing's expeditionary force was modeled somewhat on the organizations of our allies. It was well adapted to the defensive, trench warfare of the machine-gun-dominated Western Front of World War I. Fortunately, our troops were inculcated with the offensive spirit that culminated in the Meuse-Argonne Offensive and victory. In the late thirties, after many years of study and reflection, the U. S. Army developed, tested and adopted the triangular division because it was considered a better offensive organization. This division stood the test of World War II. As a result of the Korean conflict, many have advocated a return to a square division because of its greater staying power. Curiously enough, we employed no essentially new weapons in Korea but after the first year fought primarily a defensive war. How much of the thinking of the new advocates of the square division stems from their experiences in the defensive phase of Korea? Were the originators of the Pentomic division unduly influenced by the ability of five maneuver elements to conduct a perimeter defense? It must be recognized that purely defensive garrisons (in addition to AA units) have their place in warfare for the defense of ports, airfields, and fixed defensive installations. However, in most cases these needs are transitory.

Currently, very considerable thought is going into the problem of defending western Europe with inferior numbers against a Soviet mass ground attack. The search for a solution to this problem, coupled with the obvious necessity for dispersion in the face of possible atomic attack, has led to the evolution of the mobile defense concept. This, in turn, has had a strong influence upon our organizational planners, as well it should. However, we must not let our necessary initial defensive posture create basic divisional organizations unsuited for offensive action. This brings us to our next fundamental: The bulk of the combat units must be organized for offensive action.

#### SECURITY AND SURPRISE

To follow the principles of Security and Surprise a commander must have organic security reconnaissance forces. He must have the means to prevent the enemy from surprising him and to keep the enemy from gaining informa-

tion which might prevent the accomplishment of our mission. A commander must also have information of the enemy if he is to gain the advantage of surprise, so often essential to victory. Reconnaissance elements can also perform counter-reconnaissance missions. However, to stop an enemy reconnaissance in force it will normally be necessary to use other combat units. It has been said that a commander has security when the enemy cannot surprise him. Actually, a commander has battlefield security when he has time to redispense his forces to meet an enemy threat. In other words: A combat unit needs organic reconnaissance elements mobile and strong enough to operate at a distance which will give the commander time to redispense major elements of his force in the face of an enemy threat or to take advantage of detected enemy weakness.

#### SIMPLICITY

The principle of Simplicity relates both to matériel and to personnel. In the latter area, it is closely related to the principle of Unity of Command. So far as equipment is concerned, it is axiomatic that a combat unit should have only that organic equipment which its personnel can use and maintain while accomplishing the primary mission of the unit. Again we have a close relationship. Here, however, the emphasis is on providing only that equipment absolutely essential to the soldier for fighting. And only that equipment which he can maintain under combat conditions. This is part of the basis, in addition to economy, for the arguments against giving every rifleman infrared glasses, a telescopic sight or other nice-to-have-when-it-works gear. A second fundamental of organization based upon the principle of Simplicity is that there should be a minimum number of type units. This will allow rotation of individuals with a minimum of orientation time required in the new unit. Anyone joining a new outfit needs a certain period of time to familiarize himself with the unit SOPs and personnel policies before becoming fully effective. If we add to this learning the capabilities, limitations and organization of a new type unit, the time period is greatly extended. The same fundamental would still apply if we were to adopt a system of small-unit rotation, since the major commanders, and the staffs, of the higher unit to which they were assigned would have to learn the capa-

bilities and logistical requirements of the various type units with resulting temporary losses in efficiency.

#### UNITY OF COMMAND

It is essential to recognize that Unity of Command is the key to organization. Numerous studies have indicated that a commander cannot directly control the operations of more than eight subordinate commanders and that if he has less than three, efficiency is lost. There can be no division of responsibility in either operational or administrative fields. Thus we arrive at our next fundamental: a combat unit requires a clear-cut chain of command which does not exceed the span of control of its commander. This is a fundamental which must not be forgotten.

There is another, not quite so obvious, fundamental based upon the principle of Unity of Command: Units must be so organized that their commander is able to administer, train, and finally fight his outfit. In 1954, the 44th Infantry Division, in conducting Exercise Hilltop, planned to test the operations of platoon-sized mobile task forces. However, as General Willard G. Wyman stated in the August 1956 issue of this magazine: "The platoon-sized mobile force was not used because of the inexperience of company commanders in the employment of mobile forces." That was in our present army. Were we to undergo full mobilization those same leaders would be at least battalion commanders. Would they be capable of training even more complex units? In addition to training we must always recognize the vital role of good administration at the company and regimental levels. It is one of the cornerstones of morale. Accordingly, the superior leader must be an administrator, and that takes experience. Therefore, we must not create small units with so many types of weapons and vehicles that commanders cannot command them.

**A** REVIEW of the fundamentals of combat-unit organization which we have developed will show a high degree of interrelationship between them, and also some apparent conflicts. So would a similar analysis of the principles of war. That is as it should be. At the same time, it is recognized that we will not be able to follow these fundamentals in every case. However, our organizational planners must know wherein they are deviating, and compensate accordingly.



*The record of a decade of frustration and failure in achieving total nuclear disarmament suggests that an effort to limit the use of nuclear weapons might be more profitable*

# The Case for Weapons Limitation

H. A. DeWeerd

THE central crisis of our time stems from inability of nations to resolve certain disputes without resort to the use of force, and that in the future, if not at present, the unrestricted use of force may spell extinction for mankind. This grim prospect has not suddenly manifested itself. For the first ten years of the nuclear era this threat has been before us, but during these ten years no progress was made toward the American goal of complete nuclear disarmament.

There are many possible explanations for this failure, but the principal reason is to be found in the nature of our political institutions. Disarmament matters fall within the province of foreign politics, and as Count Alèxis de Tocqueville observed in his study of democracy in America, "foreign politics demand scarcely any of those qualities which a democracy possesses; and they require, on the contrary, the perfect use of almost all those qualities in which it is deficient."

After briefly reviewing the major American proposals in the field of nuclear disarmament and limitations since 1946, it may be helpful to examine the major causes for the failure of these proposals. Finally, it may be useful to ask if a policy of limitations on the use of nuclear weapons may not promise more than a continued search for what appears to be unobtainable.

## The Baruch Proposal of 14 June 1946

On 14 June 1946, the United States made what appeared to some as an offer of unprecedented generosity. It offered to put under international control—after certain

safeguards had been established—a weapon of incalculable power which it alone possessed. No nation in history had ever offered to do this with any weapon remotely comparable to the atomic bomb. America and its allies were annoyed and mystified when the Soviet Union adroitly but firmly rejected this offer. Let us examine this offer briefly and the reasons for its failure.

The so-called Baruch proposals called for the following:

- ¶ The setting up of an international authority to control all dangerous aspects of nuclear energy, including an adequate inspection system.
- ¶ The setting up of a system of severe punishments for violations of the above control measures.
- ¶ After satisfactory completion of these arrangements, manufacture of atomic weapons would cease.
- ¶ Existing weapons would be disposed of in a manner arranged by treaty.
- ¶ There would be a quota distribution of nuclear facilities by the international authority to prevent a dangerous accumulation in one area.
- ¶ All nations, great and small, were to be included in the arrangements.
- ¶ A voluntary relinquishment of the U.N. Security Council veto on nuclear matters was recommended.

Now why was the Baruch proposal an impractical proposition in the environment of 1946, despite the outward appearance of generosity on the part of the United States? Why did it fail of acceptance by the Soviet Union?

In attempting to answer these questions some critics have pointed out the fact that the nations involved were not ready for the surrender of sovereignty required, but few have examined the military implications of these proposals.

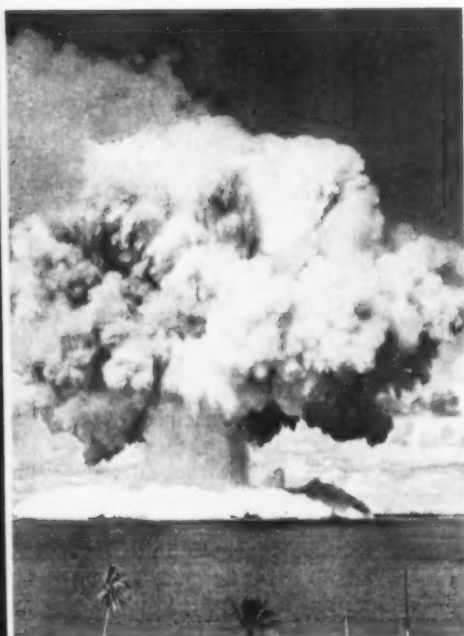
Looking at the environment of 1946, we must remind ourselves that World War II had just ended with the destruction of German and Japanese military power. For the first time since the revolution of 1917, communist Russia was surrounded by power vacuums in the West and East. The personal dictatorship of Joseph Stalin had not only survived the war, but seemed to have been strengthened by it. Britain and the United States, the two principal allies of the Soviet Union, demobilized their vast military forces with unprecedented speed. No similar tendency toward demobilization appeared in the Soviet Union, but instead ominous signs developed that the great strength of the Soviet Union in ground forces was being used to secure

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**Dr. Harvey A. DeWeerd** has been a steady contributor to ARMY and its predecessors since 1930, when he wrote a two-part study of the generalship in the Gallipoli campaign, in *Infantry Journal*. He was educated in Michigan, taught history at Denison University and University of Missouri, and studied at the Institute for Advanced Study at Princeton. During World War II he was Associate Editor of *Infantry Journal*. He is the author of *Great Soldiers of World War I*, *Great Soldiers of World War II*, and other books, including the co-authorship of *World War II: A Concise History*. Dr. DeWeerd is on the staff of the Rand Corporation. His last contribution was "Time of Atomic Plenty" (July 1954).



While Soviet armies were securing political control over Eastern Europe . . .



. . . The United States was testing early atomic weapons at Bikini atoll . . .

. . . after rapidly bringing home and demobilizing its World War II armies



political control over the satellite areas. Threats of Soviet aggression soon developed against Iran and Turkey.

#### **Why Stalin rejected the Baruch plan**

In view of the weakening military posture of Britain and the United States, the Baruch proposal was not calculated to restrain the aggressive impulses of the Soviet Union. The Western powers could not demonstrate the ground force strength required to prevent Soviet expansion by transferring the American monopoly in nuclear weapons over to an international agency. Besides, one suspects that Stalin, to whom generosity and idealism in international affairs were regarded as imbecility, looked upon the Baruch proposal as an ingenious trap and not as a serious proposal. To the man who reached the top of the communist hierarchy by slaughtering his old companions and butchering the kulaks, a proposal for the international control of all dangerous phases of nuclear energy must have seemed like a booby trap to destroy him and communism. For neither he nor communism could survive the extension of such a system of controls to the Soviet Union.

In Stalin's view, the Baruch proposal was an invitation to suicide. Besides, the Soviet Union was then within three years of testing its first fission weapon, and no Soviet leader would submit to these kinds of controls before the Soviet

Union confirmed its own weapons calculations by tests. As a consequence he gave orders to Andrey Gromyko to torpedo the Baruch proposal. This Gromyko did on June 19, 1946 when he made the counter proposal that:

- ¶ All production of nuclear weapons should stop.
- ¶ All existing weapons should be destroyed within thirty days.
- ¶ An international convention should be called to outlaw nuclear weapons.

The basic conflict in views developed in the Baruch-Gromyko proposals persisted for the next eight years and prevented any major development from taking place in the field of weapons control.

During these eight years it was fashionable to blame the failure of the Baruch proposals on the Soviet Union. Yet politics is the art of the possible, and it was "impossible" to expect old Bolsheviks like Stalin to unseat and destroy themselves. According to the testimony of Frederick Osborn, realistic men like Secretary Forrestal and Judge Patterson privately held the view that negotiating with the Soviet Union on the Baruch proposals was a "lot of bunk."

In a sense we were saved by the domestic predicament of the communist leaders of Russia, for if they had been able to risk the embarrassing features of inspection as we proposed it, they might have compelled the U. S. to carry out its offer of June 1946 and turn our atomic weapons over to an international body. Since we did not accompany the Baruch proposals with a demand for concurrent reductions in Soviet ground force strength, we might have withdrawn from ourselves and our allies whatever deterrent force our air-atomic capability exerted during the years 1946-1955. The fact that it took our government five years to recognize these facts and add a demand for reductions in conventional forces as a *sine qua non* for nuclear disarmament or limitations—will be difficult to explain to future generations. They will not understand why we offered to surrender our nuclear weapons to international control at a time when we were systematically divesting ourselves of ground force strength and when we depended almost entirely on nuclear weapons to prevent the Soviet Union from overrunning Western Europe.

#### **Exercise in unreality, or why the Baruch plan**

The question naturally arises as to why the United States put forth a proposal as impractical and unsuccessful as the Baruch offer. One apparent reason was the absence of a body that could prepare the U. S. position; there was really no effective long-range planning and evaluation of military-political problems facing the United States in 1946. There was not even a policy planning staff in the State Department until after World War II, and even after it was established, to judge by the results, there seems to be a tendency to overlook or minimize the military-scientific aspects of policy decisions.

A second explanation for the American action in putting forth the Baruch proposals may be found in our penchant for attempting total and immediate solutions to long-standing problems in international relations. We are not satisfied with small gains; we want to solve all the big problems at once. The Kellogg Pact of 1928 which typified an American belief that the proper way to do away with war was simply to get the nations of the world to renounce war as an instrument of national policy is an example. This famous "drunkard's oath," which no one outside the United States took seriously, did not reduce the number of wars; it merely reduced the number of declared wars.

Another example of the American tendency to try to solve international problems in a total fashion can be found in our attempts to prevent the transfer of territory in the world after 1899 by the use of force. This, as George F. Kennan observed in *Realities of American Foreign Policy*, was a kind of innocent American dream.

We were satisfied, by this time, with our own borders; and we found it pleasant to picture the outside world as

one in which other peoples were similarly satisfied with theirs, or ought to be. With everyone thus satisfied, the main problem of world peace, as it appeared to us, was plainly the arrangement of a suitable framework of contractual engagements in which this happy *status quo* . . . could be sealed and perpetuated. . . .

We therefore got busy and in the next thirty years concluded nearly a hundred agreements for the arbitration or conciliation of disputes with other nations—only two of which were ever invoked.

Other examples of American behavior in this field are to be found in the neutrality legislation of the 1930s. This did not help us at all during 1935-1941, for the Axis aggressors were well prepared for their aggressions. It was their peace-loving democratic victims who were unprepared and needed arms with which to defend themselves. When finally all our friends except Britain had been picked off, one at a time, we recognized the fact that a country cannot isolate itself against war by legislation.

Unfortunately any belief that the United States has outgrown this kind of foolishness is premature. The American support given to the clause in the Japanese constitution of 1947 which made military organizations and war activities illegal makes this clear. This strange act was applauded by many people in this country. Nine years later some of the same people are expressing irritation at the slowness of Japanese rearmament—in spite of the constitution!

These and other explanations as to why the U. S. put forth the Baruch proposals in 1946 stem from the basic American reluctance to treat the power factors of international relations in a realistic fashion. The assumption that the United States seemed to be acting on in 1946 when it made the Baruch proposal was that the power-struggle between nations had somehow suspended itself on account of the development of nuclear weapons. This, unfortunately, was not the case.

#### **Unrealistic quantum jumps or realistic small gains?**

In one sense the Baruch proposals were realistic. They recognized that international control was practical only before the manufacture of nuclear material had become widespread. The chief difficulty was that the state of confidence and morality in the world did not make them possible of realization. The question which forces itself on any thoughtful person who faces the nuclear armament problem realistically is: does it pay to break the hearts of men by proposing at various crises in human affairs steps entirely beyond the capabilities of society? Would it not be better to make small gains in the direction of limiting violence in the world—after experience has repeatedly taught us that attempts at abolishing violence by international agreement at this stage of world affairs is futile? In brief, would it not have been much more realistic and perhaps safer, if the United States had spent a part of the last ten years trying to work out a reasonable policy on the limited use of nuclear weapons?

But back to the matter of U. S. policy after 1946. We did, of course, subsequently attend hundred of meetings of the United Nations atomic energy commission group. We made many minor variations of the Baruch proposals in the years 1946-1954, but in essentials we stuck to basic provisions of the Baruch proposals. In this same period,



however, we developed the concept of air-atomic power and channeled funds into the construction of a strategic air force. Our leaders accepted the assumption that the Western powers could not match the conventional forces of the communist world, now swelled by the manpower of China. We put reliance on nuclear weapons for deterring war, as well as fighting war. Thus we placed ourselves in a position where we were still advocating the abolition of nuclear weapons but if, by some unimaginable development, our proposal had been accepted, we would have conferred world power on the communist bloc.

A basic dichotomy has plagued our weapons and disarmament policies since 1946. Our policy could only be realistic and safe, in the existing world situation, if the United States was willing to raise sufficient ground forces armed with conventional weapons to meet our defense and treaty obligations. The Korean war forced us to build up a reasonable posture so far as conventional forces are concerned, but the thaw brought about in the Cold War by Stalin's successors shows great promise of undermining the conventional forces of both Britain and the United States.

Despite the far-reaching changes in the world between 1946 and 1955, the United States was slow in adjusting its nuclear disarmament policy. The changes are well known: the end of the American monopoly on fission weapons; the development of a thermonuclear capability, in both the United States and the Soviet Union; the development of long-range air delivery systems; the control of the satellites and Czechoslovakia by the Soviet Union; the conquest of China by the communists; the Korean and Indochina wars ending with half of these countries securely in communist hands, and the death of Stalin and the introduction of flexibility and deception into communist plans. Yet, prior to the year 1955, the United States made no really important changes in the unproductive disarmament position taken up in 1946.

The changes we did make, however, included the following: (1) In 1950 the United States added a long-overdue demand that reduction in conventional forces accompany or precede nuclear disarmament; (2) The United States announced that it would use nuclear weapons only in repelling aggression; (3) President Eisenhower launched the "atoms for peace" movement in 1953; (4) The President offered his "Open Skies" proposal to the Soviet leaders at Geneva in 1955; and (5) The President offered in 1956 to freeze nuclear weapons stockpiles at their present levels.

#### **Not less tension but less aggression**

Let us examine critically the last three of these proposals. The "Atoms for Peace" proposal attracted and still attracts a great deal of attention in the world. This shows how great were the gains to be made by exploring new approaches to the problem of nuclear security. Yet, ironically, there is a basic misunderstanding about this proposal and all other talk about "atoms for peace." This misunderstanding is based on the false assumption that you can—at this stage of affairs—have a large-scale nuclear power program without secondary hazards. Effective power reactors of the breeder type produce weapons materials as by-products. So as we foster the development of nuclear power facilities throughout the world, we should not delude ourselves and

others into thinking that all the by-products of this program will necessarily be used for peaceful purposes. We should avoid contributing to the dangerous illusion that the "lessening of tension" which may be accomplished by an "atoms for peace" program is in itself a good thing. What is needed in the world is not less tension but less aggression. The idea that wars come only or even largely because of tension is misleading if not absurd. Wars come because one power or group of powers is determined to conquer or dominate areas not now under their domination. The danger in lessening tension is likely to stem from the relaxation of their intended victim's vigilance and preparations for defense. That, of course, is precisely what has been going on in the world since Stalin's death.

One of the chief criticisms one can level at American policy proposals in connection with nuclear weapons up to the present is that they failed to reflect an appreciation of the fast-growing Soviet air-atomic capability and to treat with that country on the basis of equality so far as advantages and disadvantages go. Looked at from the Soviet point of view our proposals of 1955 and 1956 were loaded in favor of the United States.

#### **Offering the Russians nothing for something**

One of the major reasons why the Soviet Union rejected the Geneva proposals for "Open Skies" and "blue-print exchanges" was that they did not look upon this offer as a real *quid pro quo* arrangement. In the power struggle as it now exists, the Soviet Union has no shortage of military intelligence about the United States. We offer them our military strength pretty much as in an open book. With their tighter system of internal controls, they can and do deny us much of the information they get from us for nothing. We proposed in Geneva that they give us very complete information about the Soviet Union in return for what they already knew about the United States. That was no bargain and they naturally refused to do business with us. They were not ready for the detailed invasion of their industrial and military community on the scale required for on-the-ground confirmation of overflight information and many doubt that we were.

Much the same criticism can be levelled at the offer made on March 1, 1956, in the President's letter to Bulganin suggesting a freeze on stockpile sizes. The reason why the Soviet response up to this time has been one of only mild interest is that a freeze on stockpiles now or in the comparatively near future would leave the USSR in a permanent state of quantitative inferiority. If we expect them to accept such a proposal, we must also expect them to amass a stockpile which, whatever its relation may be in size to the U. S. stockpile, will be big enough to meet any foreseeable Soviet needs.

#### **Preparing weapons policies that the times demand**

Since the Soviet Union has apparently stopped talking about nuclear disarmament and is now concentrating its attention primarily on the limitation of conventional forces, it would seem wise for the United States to adjust its policies to the present environment. We should at least be exploring with the insight and detail required, the possibilities of sponsoring limitations on the use of nuclear weapons—on a unilateral basis if necessary.



## Government by Knout

Bayonets and tanks were introduced [in Hungary] as means of government. However, as the Duke of Morny, half brother of Napoleon III, observed: "You can do anything with a bayonet except sit on it." He might have added "or govern."

This applies equally to tanks. The present generation of Hungarians was trained by Soviet textbooks in the art of street warfare and underground resistance. That knowledge has been applied with grim skill.

When a Russian tank penetrated Budapest it found inverted soup plates on the street. The tank stopped. A soldier emerged to see if these were Teller mines. A Hungarian darted from shelter, like a bullfight banderillero, and fastened national flags behind the turret. When the next Soviet tank appeared and saw what looked like a rebel vehicle, it shot it up.

C. L. SULZBERGER  
The New York Times  
22 December 1956

If it is true, as many of our leaders have assured us, that the prospect of general nuclear war—no restrictions on the use of nuclear weapons with complete destruction of war industrial and population centers—will diminish with the arrival of nuclear parity and plenty, then we are facing a period of limited wars fought with limited aims and with the limited use of nuclear weapons. We should be preparing weapons policies to meet these conditions.

It is strange that some of the nuclear and political scientists who have carried the torch for total nuclear disarmament reject the idea of limitations on the use of nuclear weapons as "impractical." Having swallowed the camel of total disarmament these men choke on the gnat of limitations. Some of them do so in the belief that weapons limitations are "certain to break down." Others like Sir John Slessor admit that limitations may do in Asia but not in Europe. The constant refrain is: "no country possessing nuclear weapons will go down to defeat in war maintaining a limitation if it thinks it can escape defeat by breaking the limitations and employ nuclear weapons in a new and decisive fashion." A basic objection to these assumptions is that in a limited war environment "victory" and/or "defeat" do not mean the same thing as they did in the high-explosive era. Survival with the closest possible approach to the *status quo* may be the only practical and over-riding objective for both sides in a limited nuclear war. There are no practical or interesting objectives for either side in an unlimited nuclear war.

### The unblinking Slav respects the existence of the power struggle

In some respects the Soviet leaders have shown themselves since 1946 to have been more realistic about their weapons policies than we have been. They have not acted as if they thought the power struggle had disappeared

from the world with the advent of nuclear weapons. They advocated total nuclear disarmament and destruction of our stockpile when the Soviet Union had no nuclear weapons. They resisted suggestions for the reduction of conventional forces when they were weak in nuclear forces. When, at last, the Soviet Union is strong in nuclear weapons and making rapid strides toward the creation of a long-range air force, their leaders are silent about nuclear disarmament—or put the question in the deep freeze by attaching unattainable prerequisites. Now they are talking primarily about reductions in the conventional forces of the world.

The Soviet Union will in all probability continue to advocate the non-use of nuclear weapons. It may threaten all-out use of these weapons if any country uses them in tactical operations, but these threats must be weighed against the great advantages that Russia and China will enjoy in any future war so far as manpower is concerned. With the advantage of superior numbers, they will need less nuclear violence to accomplish their aims than the West. Assuming that their war aims will be limited—that they will not be striking for complete world domination at all costs—then they stand to gain something through the maintenance of limitations on the tactical use of nuclear weapons. If the Soviet Union has unlimited war aims, it will probably begin the war with an all-out surprise attack on Western Europe and the United States and in that case, the ability of SAC to ride out such an attack—and not the limitations policy we adopt—will decide matters.

There are some reasons for belief that the Soviet Union might be disposed to accept a Western limitation on the use of nuclear weapons and observe it in case war breaks out in Western Europe. The side which needs the most violence and the least limitation can impose its will on a rational enemy in this matter. This should put the initial control of the situation in the hands of the West, because it needs more nuclear violence and therefore less limitation in order to defend Europe than the Soviet Union needs to attack.

By maintaining uncertainty about the implementation or exact character of a limitation which it might accept until the very last moment, the Soviet Union may exacerbate the divisions within NATO, but it cannot continue such a policy indefinitely without certain costs and risks. For one thing we can count on the fears of the satellites whose leaders will be aware of the level of destruction to be expected in their areas in case the Soviet Union rejects limitations. All nations, including the Soviet Union, face the prospect that any kind of nuclear war fought without limitations may rapidly engulf them in hazardous situations. And finally, the Soviet Union must consider the effects of its all-or-nothing weapons policy on its big ally, China, and on the big neutrals such as India.

When both sides have a well protected SAC capability and the tactical capability to make each increase in the level of nuclear violence equally costly, then there will be little incentive—short of a decision to revert to unlimited war—to break down a limitation announced before the war—and less incentive for the Soviet Union or China than the United States. It would therefore seem that limitations on the use of nuclear weapons may prove to be a more fruitful field for activity by the United States than to continue to press for a program which aims at fool-proof inspection and total nuclear disarmament.

# RUSSIAN ARMY HELICOPTERS

In the opinion of experts who watch Russian aircraft developments, the Soviets are most surely ahead of the U. S. in the design of what might be called conventional helicopters. But in advanced research, such as boundary layer control and engines, we are probably well out in front. This means that the mobility of the U. S. Army will be equal or superior to Russian mobility only if funds are made available to continue this advanced research and to produce in quantity the most promising of its results. The fact that the Russians have put some of their best aeronautical engineers to work on helicopters (Yakovlev, the designer of the Horse, being the outstanding example) indicates that the problem of achieving air mobility for the Soviet Army has been assigned a high priority.



## HAT

Two models of this "flying motorcycle" have been identified: the K-17 and the K-10. Used as reconnaissance and observation craft, these one-man jobs are powered by a 50-hp engine turning counter-rotating rotors. They have a range of about 75 miles. In this photo the Hat appears to be landing on the bed of a truck. Some models have a covered fuselage to protect the operator in bad weather.



## HARE

A utility and reconnaissance craft, the Hare or MI-1 will seat three passengers or carry a 1,000-pound payload. It has good visibility as a reconnaissance vehicle. It is used in Russia by civilian organizations as well as the Army, especially by the para-military DOSSAF flying clubs which train many aviators. It is probable that the total number of this helicopter that are in operation does not begin to compare with the total number of comparable utility helicopters in operation in the U. S. today.

## HORSE

Designed by Yakovlev, a foremost designer of Soviet combat planes and also the sturdy "Creek" light fixed-wing plane which is comparable to our L-19, the Horse, as its name suggests, is the principal heavy cargo carrier of the Soviet helicopter fleet. Known as the Yak-24, it can carry 40 to 50 fully armed men or a payload of some 10,000 pounds about 100 miles. The newest of Soviet helicopters, it has a tandem rotor and a power plant similar to that of the Hound. Its nearest U. S. counterpart is the discontinued YH-16. The Horse is believed to be in limited production. Western observers have seen as many as five in flight at one time. The Russians claim to have flown it over the North Pole.



## HOUND

The most attractive features of this 4,000-5,000-pound payload, 2,000-hp MI-4 helicopter are its cargo configuration and the clamshell doors for loading light trucks and artillery pieces. Because of the scarcity of Soviet ground transportation and the inadequacy of Russian roads, quantity production of the Hound would give the Soviet Army a degree of mobility it did not previously possess. In the photo below it appears that a 76mm divisional gun is being manhandled into position for loading.





Figure 1.  
The Army's first branch  
insignia: Pewter cap plate  
of U. S. Dragoons, 1800



Figure 2.  
Cockade eagles, excavated  
from the site of a War  
of 1812 encampment

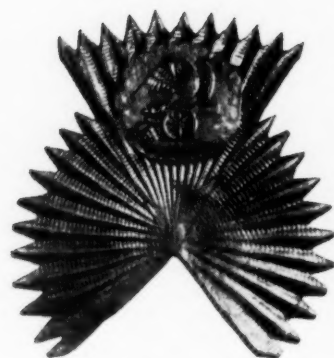


Figure 3.  
Leather fan cockade of  
U. S. Artillery, 1808

## Early American Art: U. S. Army Branch Insignia

Uncle Sam got his name from the initials  
on the cap plate of the Light Dragoons

### LIEUTENANT COLONEL JAMES DUNCAN CAMPBELL

THE designs used in cap and other plates, first worn by the United States Army during the first twenty years of the nineteenth century, are a fascinating yet little known form of early American art. Before 1800 insignia on hats and caps was limited to small eagles of pewter or brass, centered on cockades of cloth. Some militia units, following a custom which originated during the Revolutionary War, wore painted devices on their leather caps. These were uncommon even in their own era. Few specimens survive.

Army regulations of 1800 give the earliest description of a pewter cap plate worn by a branch of the Regular service. This Dragoon plate (Figure 1)

was described as "a rectangular plate, exhibiting a Dragoon in the act of charging." More than a dozen helmets, with plates, are in existing collections. They were popular with the militia long after being discarded by the Regulars. The Rockbridge Dragoons of Lexington, Virginia, a Confederate unit, wore this type of helmet and plate as late as 1865.

During the first decade of the nineteenth century the Infantry wore a round leather cap ornamented only with a cloth or leather cockade and small metal eagle (Figure 2).

In 1808, the Light Artillery wore caps that displayed one-inch brass letters U.S.L.A.; Riflemen wore the brass

U.S.R.R.; and Light Dragoons pewter U.S.L.D. John B. McMaster, in *A History of the People of the United States*, relates these cap letters to the origin of "Uncle Sam" as a nickname for the United States. Before 1812, when a troop of Dragoons was moving through Albany, New York, and an onlooker asked the definition of U.S.L.D., a wag replied, "They're Uncle Sam's Lazy Dogs."

Unlike men of other branches, enlisted men of Artillery, in 1808, wore a chapeau ornamented with a large leather fan cockade on which an eagle-on-cannon design (Figure 3), similar to the one on their buttons, was superimposed.





Figure 4.  
Tall leather cap, War of  
1812 period, with silver  
cap plate for Infantry



Figure 5.  
First cap plate of  
U. S. Infantry, 1812



Figure 6.  
Second pattern of cap plate  
of U. S. Infantry, 1814-21

In 1810 the round caps of the Infantry were replaced by cylindrical ones of felt-covered body and leather visor. Two years later the tall leather cap was introduced which gradually supplanted the felt-covered type throughout the Army. The adoption of the leather cap developed a need for an ornamental plate for each branch (Figure 4). The pewter plate worn by the Infantry in 1812 (Figure 5) included the regimental number at the bottom. These were worn by the brigade of Regulars led by General Zebulon Pike who stormed the heights at York (now Toronto) in "Upper Canada." In 1814 the design was modified (Figure 6) to make the plate neater, lighter, smaller and less expensive. Specimens of the later type, worn by Infantry until 1821,

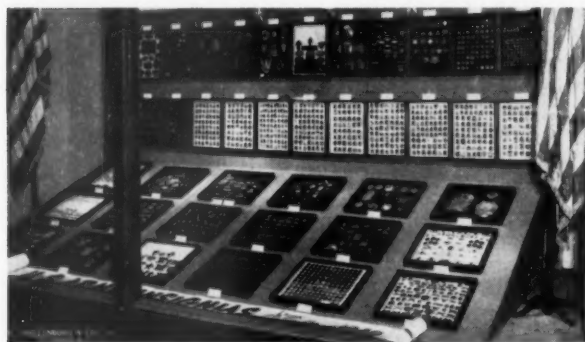
were excavated at Fort Atkinson, Nebraska, and Sackets Harbor, New York.

THE 1812 insignia for Riflemen, to replace the letters U.S.R.A., was a diamond-shaped plate (Figure 7) worn throughout the War of 1812. The specimen shown, excavated at Fort Atkinson, must have accompanied the Rifle Regiment's long and rigorous march that began in 1817 at Plattsburg, New York, moved overland to Pittsburgh, from there to St. Louis by keelboat, and then on foot and by boat up the Missouri River to "Cantonment Council Bluffs."

A letter from the Commissary General of Purchases to the Secretary of War, 29 July 1817, said: "I send [a cap plate] herewith, w. is in my opin-

ion very appropriate for the Riflemen. The Bugle is brazed to the Eagle, however it shews the design. . . ." Until they were disbanded in 1821 the Riflemen wore this second pattern (Figure 8), together with a large brass disc cockade stamped with a looped horn surrounded by stars.

The first cap plate (1812) of the Artillery (Figure 9), is known from specimens in the museum at Fort Erie, Canada. In 1814 an explosion occurred in the magazine bastion while the fort was occupied by United States troops. These twisted and mangled bits of brass were found when the rubble was cleared during relatively recent restoration of the fort. Worn until mid-1814, these plates were struck with the regimental number in Roman numerals at



Part of Colonel Campbell's collection of U. S. insignia on display in the window of a Philadelphia department store

**Lieutenant Colonel James Duncan Campbell, MPC, USAR**, has been on the board of governors of the Company of Military Collectors and Historians since 1949. His work in military archaeology has been instrumental in identifying early military buttons and cap and belt plates. He began collecting military insignia in 1927 while in junior high school. Colonel Campbell entered the Regular Army in 1939 after being commissioned in the Infantry from Lehigh University under the Thomason Act. He has served with infantry and armor units, as assistant PMST at Lehigh, with Italian service units, and with security and intelligence agencies of Ninth Service Command. He left the Regular service as a major in 1946 and now lives in Harrisburg, Pa.



Figure 7.  
Cap plate of U. S. Riflemen, 1812



Figure 8.  
Second pattern of cap plate  
of U. S. Riflemen, 1817-21

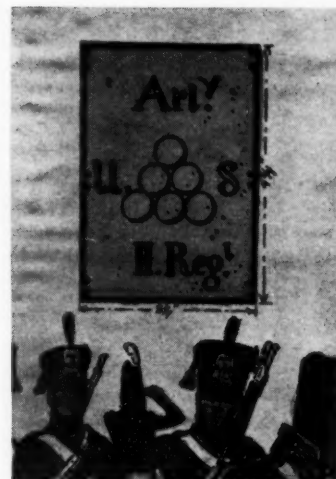


Figure 9.  
First cap plate of the  
U. S. Artillery, 1812  
(Drawing by H. Charles McBarron)



Figure 10.  
Excavated crossbelt plate  
of U. S. Artillery, 1814-21



Figure 11.  
Cap plate, possibly of U. S. Light  
Artillery, War of 1812 period



Figure 12.  
Cap of U. S. Dragoons, 1812

the bottom. When the three regiments of Artillery were reorganized as the "Corps of Artillery" in 1814, a new pattern was prescribed (Figure 10) which was worn until 1821. The crossbelt plate shows the cannon resting on grassy ground. It was excavated at Fort Pike, Sackets Harbor.

The 1812 cap plate for Light Artillery has not yet been positively identified. Disbanded in 1821, the Light Artillery had three different patterns of buttons during its life of thirteen years, and very definitely had at least one pattern of distinctive cap plate. Regulations of 1816 call for Light Artillery to wear "wings in the place of epaulets, with yellow bullion" and "gilt eagle plate in front of cap." The general characteristics of plates identified with the War of 1812 are found in one, presently unidentified (Figure 11) but well meeting the requirements for the

Light Artillery plate of the period. Besides its spread-winged eagle and crossed heavy cannon, it also exhibits a trophy of arms and flags in the background, a design frequently used on cap plates made between 1812 and 1821. It should be noted that the first crossed-cannon insignia for Artillery was not prescribed until 1836.

The Light Dragoons, whose 1800 cap plate has been described, were disbanded by 1802. When they were reactivated in 1803 their caps bore the pewter letters U.S.L.D. Expanded to two regiments during the War of 1812, the Light Dragoons were again disbanded in 1816. During the war their leather caps bore the plate prescribed in 1800. This is known from the dragoon cap (Figure 12) which bears the stamps of the Philadelphia Clothing Laboratory and the initials of an inspector who was employed there in 1812.

The short-lived era of handsome cap plates for Regulars ended when Article 65 of Army Regulations, 2 March 1821, prescribed: "Caps of company officers will be of leather; ball crown; gilt scales; yellow eagle in front, three inches between the tips of the wings, with the number of the regiment cut in the shield; black leather cockade, one and one half inch in diameter, having a small yellow button in the centre, with an eagle impressed on it. Those of the enlisted men will be of leather, and of the same form as those prescribed for officers; brass scales. . ."

While this order established a desirable uniformity of dress, the price was the loss of distinctive cap devices for the different branches for the next fifteen years. From 1821 to 1836, leather caps were ornamented only with the eagle—pewter or silver-on-copper for Infantry, brass for all others.

# THE PANORAMA OF WAR

**Field Marshal The Viscount Montgomery of Alamein**

*In October 1954, Field Marshal Montgomery delivered a lecture, "A Look Through the Window at World War III," before The Royal United Service Institution at London. In October 1955 he delivered another, "Organization for War in Modern Times," before the same Institution. And in what now appears to be an annual custom, he delivered a third on 10 October 1956, under the title, "The Panorama of Warfare in a Nuclear Age," a condensed version of which appears below.*

*To rub against the forceful, sometimes opinionated, ideas of this great soldier is occasionally an irritating, but always a stimulating experience, and one which we believe our readers will agree is profitable.—THE EDITORS.*

**W**E must consider the problem that would arise if war should be forced on us, in spite of all our endeavours to prevent it. Service chiefs and their political masters are collectively responsible for reaching decisions about the pattern of future war, so that organization and training can proceed on the right lines. We do not seem to make great progress in this respect. The tendency is to discuss the opening phases; we neglect the whole pattern. Perhaps we service chiefs are to blame.

The advent of the nuclear weapon demands a new conception of war, a full conception. I do not suggest that there will be any changes in the principles of war, but there will be fundamental changes in the way these principles are applied.

I propose that we should now peer into the future and have a look at unlimited nuclear war. We will best do this by placing ourselves at a vantage point from which we can survey the whole panorama. And, to get a balanced view, let us insulate our minds against the day-to-day pressures and influences which obscure clear thinking. This is not easy. But we can try, and I will give a lead. Time does not allow me to discuss limited war or cold war.

To get a firm background for our survey, I suggest we

consider an imaginary war between two powerful groups of nations. We will call them East and West, and we will include the NATO nations in the West. And let us look back on the conflict, rather than forward to it as is the normal custom.

I propose now to turn myself into an historian. And I will address you from a position in time three years after such a global conflict, which occurred in an age of nuclear plenty for both sides and at a time when short and long range missiles were available as vehicles of fire power in addition to manned aircraft. The war began in 1966. The East was the aggressor. It is now 1969. Looking back at that war, I saw the pattern clearly, and it was obvious to me that the West survived only because it began to do certain sensible things in 1956—which we have not done yet.

I saw that there had been three distinct phases in the war:

Phase 1—the Destructive Phase.

Phase 2—the Exploitation Phase.

Phase 3—the Reconstruction Phase.

## PHASE 1: THE DESTRUCTIVE PHASE

In the initial phase of the war a large number of nuclear weapons were delivered by the manned aircraft and missiles of both sides. The destruction caused to life and property was great. I saw that the West gained an advantage in the initial exchange for two reasons.

*First*, great effort had been devoted to developing the Western intelligence organization and early warning systems. The West got warning of the attack and the initiative was regained in a matter of hours. The West could not have done this in 1956. At that time the intelligence machine was under-developed; the scientists had received insufficient direction, and their contribution to the field of intelligence had been largely untapped.

*Second*, the West had released their air and missile forces from the bondage of decentralization. Under central control the air forces of the Western nations had been welded into one mighty weapon; this weapon crippled the East's ability to deliver nuclear weapons very soon after she began to despatch them.

In the field of air defence the West had also made great strides. Starting in 1956, a realization that the air battle could not be divided in neat watertight compartments of offence and defence had led to the unification of the many air defence systems previously in being. Only by doing this

were the Western nations able to get a unified policy and to develop the very expensive equipments necessary for modern war.

These then are the first two things I would tell our political masters today:—

1. We need better intelligence, far better.
2. The West needs centralized control of its air and missile forces.

But let us return to my imaginary war.

On land, the Eastern armies advanced to contact on all fronts. But interdiction and nuclear "fall-out" made all movement slow and costly. The ground fighting which followed contact was in many ways similar to previous wars. I noticed, however, two important points of difference.

First, the Western air forces played little part in the land battle in forward areas.

Secondly, the ground actions proceeded more slowly than had been expected, and certainly much more slowly than they had in the war of 1939-1945. These two points interested me and I examined them closely.

**T**O take the air first. The East entered the war with powerful tactical air armies, the primary task of which was to support the land armies and, to a lesser degree, her naval forces. These tactical air forces gave this support for about four days. Thereafter, although they had nuclear and conventional weapons in numbers, they were unable to deliver them with piloted aircraft; the West had so disorganized the Eastern control system, and so destroyed their static air base system, that the East could not sustain the operations of her tactical air forces.

The West on the other hand entered the war with *no* tactical air forces of the type they had developed in the 1940's and 50's. They realized in good time that piloted aircraft with nuclear weapons were *not* the sole or even the main instruments with which to give close support to the land armies. The reason was two-fold.

First, it was realized that the objectives of the land battle were no longer those of the 1939-45 War. The object in the land battle in a nuclear age is no longer to capture your enemy; it is to destroy him with atomic weapons.

And *secondly*, the communication system would be so badly damaged in the early exchange of nuclear weapons that it would not be capable of relaying the target detail in time—if at all.

The West had decided therefore that land armies must have their own organic atomic fire power on a scale which would enable them to destroy any enemy which managed to get into close contact. The air forces were to be used on the deeper interdiction and armed reconnaissance, which could to a large degree be pre-planned and, more important, could be executed even if higher control were lacking.

This then is the next thing I would tell our political masters today.

Air forces are not the weapon on which the land armies should depend for their main support. They are *admirable* weapons for the deeper indirect support which I have already described. Instead therefore of wasting effort on developing tactical air forces to support the land armies, with the communication systems and operating procedures to provide close support, we should devote this effort to provide the weapons the army really needs, *i.e.*, short-range missiles, and guns and howitzers, with small yield atomic heads.

These weapons must be designed to handle all likely ground targets which have a direct influence on the land battle. For this purpose a "family" of weapons should be developed, having ranges varying from a few hundred yards up to the maximum range of the short-range missile. These weapons should be of a very simple type, easy to move and operate.

The army must be able to do something which has never been done in history, except by Genghis Khan. The "Small Battalions" must be able to defeat the "Large Battalions." Air forces will play a part in this, but not in the forward battle area; they are not the right weapon.

Reconnaissance and intelligence of course the armies will still need, and the air forces must supply a great deal of this.

**I** SAW that in Europe during this imaginary war the function of land forces was "to hold." There were two main reasons.

First, it was the nuclear weapons of the deterrent forces, with their delivery systems, which contributed most to the offensive punch. Their function was to destroy, and the principle of economy of effort made it wasteful to launch land forces in addition.

Second, the land forces did not have to do more than hold and survive—nor could they have done so, because of the nuclear weapons *used against them by the enemy*.

I said just now that the ground actions had proceeded more slowly than expected. Why was that?

There were three main reasons.

First, *the human mind*. Every man on the battlefield in the early days heard and saw the effects of very many nuclear explosions, some far away, some very close. The effect was definite and marked. From the highest headquarters to the soldier on the battle-front, the human mind was so psychologically shocked that its efficiency deteriorated to a degree in which reactions were slow.

Secondly, the damage to communications, particularly at the higher echelons, prevented control, sometimes for long periods. Enemy jamming also interfered with control by wireless [radio] at all echelons.

Thirdly, the movement of formations was slowed by large areas of nuclear "fall-out" and by millions of refugees on the roads. I noticed that the plans of the West to deal with the refugee problem were not adequate.

From studying these imaginary events we can see emerging the pattern of our ground forces of the future. Powerful, compact fighting divisions of all arms are what we need for unlimited nuclear war, capable of sustained fighting without reinforcement. The system of control within the Corps must be simple, and should it break down, the divisions must still be able to fight. The Corps will contain three or four of these powerful divisions. A Corps must be able to fight without the interlocking support of other Corps.

Divisions need their own nuclear artillery and short-range missiles.

#### SEA FORCES

**I** THEN examined the war at sea. I saw that during the alert period which good intelligence had given the West, the fleets and task forces had been at sea. The long-range submarines of the East had also put to sea, but some of them had been detected and these were shadowed by Western forces until H-Hour, when many of them were



Monty in North Africa in the days after El Alamein where he and his Eighth Army in 1942 won the undying admiration of the Allied world



destroyed. The bulk of the Eastern submarine fleet never got to the focal shipping areas; they were detected, hunted, and destroyed on their way there and near their home waters.

The Western fleets in the main survived the initial exchanges of nuclear weapons and were, as a result, able to deliver great offensive fire power against sea, land, and air targets.

**T**HAT is how Phase 1 ended; it was suitably called the Destructive Phase. Before we go on I will summarize what we must have today as a minimum, if we are to survive the early stages of Phase 1 of unlimited nuclear war on a global scale.

*First.*—We must have far better intelligence than we have at present, to give us warning and to acquire targets.

*Second.*—The West needs to bring its air and missile force under appropriate centralized control, in order to destroy an enemy war-machine and to defend our own.

*Third.*—We need powerful and efficient land forces, armed with suitable nuclear weapons which are mobile and easy to handle.

*Fourth.*—We need reliable equipment for detecting underwater vessels at long range.

*Fifth.*—We need fleets of surface and underwater missile firing ships. In other words, means of delivering great fire power from mobile bases.

I saw that during this Phase other events occurred from which we can learn a great deal. Mobilization of reserve forces did *not* take place to any great extent in those Western countries which had been heavily bombarded with nuclear weapons. During the first two weeks a few formations were brought up to strength on a regional basis and moved to the battle area.

In fact, the armies which were "in being" in peace-time, and pre-stocked, had to do most of the fighting; they were not reinforced to any great degree.

I do not believe the present complicated mobilization machinery of the NATO countries will ever work under conditions of nuclear war. This subject needs intensive study.

The lesson is that the land forces which are deployed in peace-time to protect the territories of the Western nations must be kept up to strength, fully equipped and pre-stocked. The shield must be firm, and able to handle

a hard blow, thus gaining time for the retaliatory forces of the deterrent to come into action.

I shall now tell you how Phase 1 ended. There was no Eastern government or high military authority which could be found. By D plus 20 it was quite clear that, except for the arrival of occasional missiles with conventional war-heads, the Eastern air forces were virtually destroyed.

By D plus 25 the Eastern armies in contact were running out of fuel and ammunition; their casualties, which had been enormous, had not been evacuated or treated, and in many cases formations lacked control above regimental level. There were no co-ordinated land operations anywhere after D plus 30.

Between D plus 30 and 50, the remaining Eastern surface vessels and submarines had been eliminated.

That is how the fighting stopped, but it was not the end of the war; it was only the beginning.

#### PHASE 2: THE EXPLOITATION PHASE

Great destruction and chaos were caused in Phase 1. If the Easterners were in a bad way the Western Allies were little better, except possibly in one or two respects.

The Western air forces retained a number of piloted aircraft and missiles, and there were still some nuclear war-heads left.

The Western armies, like the Eastern land forces, had suffered very severe casualties and were not capable of movement to any great degree. The railways and the major road systems were severely damaged.

The Western navies had had casualties; but in comparison with the other armed forces of both sides, they were intact, powerful, and capable of further action. This was the situation which faced the Western nations on about D plus 45. How were they to survive? I saw that the Western leaders decided to do three things, and to do them quickly.

They were:—

*First.*—Start reconstruction of society, industry, and government.

*Second.*—Counter any spread of communism which might arise from the wholesale misery and chaos that had been created.

*Third.*—Remove from the East her remaining nuclear capability and potential.

I saw that the West undertook these tasks in the second phase in the following way.

The Western nations considered that if they were to survive, the strength that remained to them must first and immediately be directed to the reconstruction of their own societies. *If further heavy military commitments were undertaken, the nations would become so weak that Western civilization would decay and disappear.*

There could be no question of taking thousands of Eastern prisoners or of attempting any large-scale disarmament of the East; the effort would be crippling. The Western nations could not feed and administer themselves, and they could certainly not expend any great effort on their enemy. *There was no question of occupation of Eastern territory in any form.*

What remained of the Western armies slowly advanced to the frontier of Eastland, driving the enemy units before them, using force where necessary. In fact, they needed very little persuasion. Those units which could be disarmed easily were, of course, disarmed. Those units which still had a degree of cohesion and control were ordered to march East; if they refused they were attacked with nuclear weapons. On the frontier of Eastland the West established a defensive belt, with light forces supported by nuclear weapons, having freed all satellite nations that Eastland had annexed in previous wars. No Western armies entered Eastland; no armies of occupation. Search parties yes, but no occupying forces.

Eventually, the commanders in charge of these operations reported that the task was as complete as it ever would be. All Western forces and civil personnel were then withdrawn from Eastland. It took the West about two years to complete this task.

### PHASE 3: THE RECONSTRUCTION PHASE

The third phase was reconstruction.

It took a very long time to rebuild the economy and society of the democratic world after such a war. The extensive use of nuclear material to produce power in all its forms would have reduced the length of this reconstruction period. The lesson for us today is that great advances will have to be made in the techniques for doing this, and in the methods of applying these techniques easily and quickly to the needs of industry and of society.

I have now given you a panorama of warfare in a nuclear age, some of the things we need, and some of the things we must do to ensure the survival of our Western way of life.

### LOGISTICS

You will have noticed that I have not yet mentioned logistics. The reason is that I found it quite impossible to visualize a war of the future being supported by our present logistic system.

It is time that we looked at this problem more realistically. Wherever I go I hear people say we want more of this and more of that.

We shall *not* get any more. We have a vast complicated organization for the distribution of material all over the world. Hundreds of committees in peace-time, and even more in war, receive millions of reports and issue thousands of instructions every day; no communication system will ever carry the load. Anybody who thinks the present system will work after thousands of nuclear weapons have been exchanged, is mad. After the first nuclear exchange, nothing of any size or quantity will move on land in the areas in which these weapons have exploded or are explod-

ing. *Perhaps at sea alone may surface movement on any scale be possible.* Hence the importance of sea power; it will be needed in Phases 2 and 3.

There is not time to develop this subject further. It is sufficient to say that the most intensive study is essential in order to get us out of the logistic morass in which we are floundering.

### HOW CAN WE DO THESE THINGS?

I now propose to suggest how we should set about getting some of the things we need.

The first thing we must do is to make a master global plan for the fight against communism. But we cannot make such a plan without a Supreme Authority for the direction of political policy and military strategy. The West is trying to fight communism; this is a global struggle and we must have a global plan. There is no global plan.

The Supreme Authority is needed *now* to make the master plans and to prepare all the Western nations for what might come, to tell them what parts they should play. They might not wish to play their parts but that is another matter; at least they should be told; the responsibility for non-co-operation will then be on their shoulders.

### AS WE MOVE TOWARDS THE MISSILE AGE

We must have a plan for the development of our forces as we move towards the missile age. That plan must be based on certain fundamental factors, some of which, in my opinion, are as follows:

(1) By 1966 we will have seen the start of the transition to the period of the missile, and we will have begun to use the nuclear warhead for our fire power. From that time on, we may expect increasingly rapid progress in this direction until other means of delivery and other forms of fire power become the exception rather than the rule—at any rate in unlimited nuclear war.

(2) Manned aircraft will not go completely out of business for a very long time, so far as can be foreseen.

(3) In the not too distant future we will reach the stage where almost any amount of destructive force will be able to be despatched from any point, to objectives at any range from zero miles to more than 5,000 miles distance. In fact, we can say that we are almost in that position today. Therefore, the interests of efficiency and economy will dictate modifications in our organization. Integration of control will be absolutely essential to the efficient accomplishment of military tasks. Theoretically, the ideal solution would be to combine all military functions into a single Service, not by any blitz methods of attack but by a gradual process. But today this would not be possible. This is a pity as such a change would make the problem so much easier. There is today great duplication and great waste in Service affairs; inter-Service rivalries and mistrust still distort our judgment and make sound decisions impossible.

This might be the ultimate solution but, whether or not we go this far, the barriers that now exist between Services and their functions must give way. The independence that characterizes our Service relationship today must yield in favour of interdependence.

(4) In spite of aircraft of ever increasing capabilities, and in spite of the advent of guided and ballistic missiles, there is still a need for well organized and highly trained ground forces. They are vital to our strategy. The concept of massed armies is a thing of the past. But we must have

an effective shield on the ground, with an integrated atomic capability. Nothing that has yet been seen or envisaged in the field of new weapons can replace the need for men on the ground actually holding territory which, without their presence, would certainly fall into enemy hands in war.

(5) A major problem will be to devise a system by which national armies will be suitable for cold or limited war, and also for unlimited nuclear war on a global scale. For limited and cold wars, divisions need an offensive capability and light equipment. For unlimited nuclear war, divisions require a defensive capability with suitable nuclear weapons.

Nations with overseas commitments which might lead to limited war, require some divisions to be located in the home country; these must be lightly equipped and the means must exist to transport them by air instantly to troubled areas. Other divisions may have to be deployed in areas in which only unlimited nuclear war is likely. In fact, nations with such dual problems need flexibility above all, so that the problems can be solved within the limits of financial possibilities.

To reconcile all these differing requirements within the field of practical realities will not be easy—but it must be done. We should realize that as unlimited nuclear war becomes less likely, so limited wars and cold war activities will become *more* likely.

(6) The proper organization of manpower is of tremendous importance, in order to give confidence to the Regular soldier, sailor, or airman that his future will be safeguarded.

An organization is required which will enable the nation to take limited wars, or cold war activities, in its stride—without upsetting the planned lives of a valuable section of the community.

#### THE OUTSTANDING POINTS

What are the outstanding lessons from this address?

First, that another world war in a nuclear age would be a most devastating affair. We fighting men are often accused of liking war; in fact, we are the people who dislike it most because we know too well what it means to humanity. But we have to plan for war, and be ready should it be forced on us by some evil man, or evil group of men who seize power and attempt to exert their will by force. Only in this way can we survive if attacked.

From lessons learned this afternoon it is obvious that we must do everything possible to prevent a war from taking place; it would be suicidal for both sides.

We will not get peace by threatening war. But in the modern world peace can be assured only by military strength; this may be sad, but it is a fact. Therefore we must maintain such a position of strength as will make an act of aggression very, very expensive for the aggressor. Only in this way can we be assured of maintaining our objective of peace, *at present*.

Next, we are faced with a difficult problem to get the overall military strength we need, and to get it within the limits of financial possibilities. It is vital that we in the fighting Services should not blindfold ourselves with Service partisanship, with outdated concepts, or allow our thinking to become shackled by doctrine and tradition.

The technological race with other nations is not the only problem. There is also the problem of organizing our de-

fences so that we may use the new weapons most effectively. Weapons usually outstrip strategy and tactics; the gap today is bigger than ever before.

\* \* \*

In line with this thinking, it is time we took a new look at the jobs to be done, and the forces and weapons with which to do them. We must get busy *now*—before it is too late.

Since a lot of Service controversy results from competition for the most important tasks, perhaps the roles and the missions in force today need revision. If so, let's do it.

Let us look at some other measures that might help us solve the problem. The idea of a single Service has been suggested many times. Personally I favour it. But it would not be accepted today. However, if we have another world war, I believe we would end up with a single Service—or two Services, the Quick and the Dead.

Then there is unified command. I favour this philosophy. It would help if we could get the men of all the Services to identify themselves more as members of a mission, and less by the colour of their Service uniforms.

To get better integrated commands we need more well-rounded staff officers to man them—officers who have a working knowledge of *all* the Services. This, in turn, would require a more comprehensive, unified system of military education. Learning about all the Services must start sooner—when an officer is commissioned, or even before. Today many officers reach the equivalent rank of major before coming into contact with other Services.

But the main need is to get the real truth about defence—the kind of defence we must have. If the truth shows we need a new organization, let's have it. Or if we need a new reorganization, let's do it. If re-alignment of roles and missions is necessary, let's do it.

I suggest that the proper way to tackle the problem is to think out and decide what the defence organization should be in 10 years' time.

We should then work towards it slowly, ensuring that each step taken is an advance towards the achievement of the long term objective. Who is doing this thinking today? For instance, in 10 years time (in the missile age) do you see a very large Admiralty, a very large War Office, and a very large Air Ministry—in addition to a Ministry of Defence? Personally I don't.

The whole of our defence organization needs to be examined closely, working up to a Minister of Defence who has full responsibility and the power of decision.

I believe the situation today is critical. Either we plan realistically for the future, and survive in a nuclear war—or we drift along, planning from year to year and using *ad hoc* methods, and end in disaster.

You may not agree with one word of what I have said. But that is not the point. If you do disagree, disagree constructively: go one better than I have.

So far we have heard nothing on this subject from any political or military chief in the Western world. If nothing is said, nothing will be done, and no plans will be made. We will then face the East with an archaic war machine, unformed ideas, and in a political muddle.

I have at least said something.

The future of Western civilization will depend on whether we tackle this problem with imagination and with realism—not tomorrow, but *now*.



# THE FIGHTING TEAMS OF 1977

## LIEUTENANT COLONEL G. HARRY HUPPERT

**T**HE Colonel seated himself behind his desk, lit his pipe, and opened the meeting:

"Gentlemen, since I have been away from troops since 1968, I will appreciate it if you will brief me on the general missions and functions of the 8th Battalion. Exec, let's start with you."

"Sir, I'm Lieutenant Colonel Pickett. My duties and functions are similar to those you have known in other troop units. To assist you in your command efforts, we also have Lieutenant Colonel Roth, who is intelligence and operations officer, and Lieutenant Colonel James, in charge of administration and supply. You and we three, plus our drivers and radio technicians and I&O Section's training and operations unit, are the only TOE members of the 8th Battalion.

"We are presently assigned to a combat command which is currently a part of the 7th Division. Under present

doctrine, we may be assigned to any combat command of any division, depending on the requirements of higher headquarters. You know, I am sure, there are no more infantry or armored divisions as such. Except for general officers, colonels and lieutenant colonels, all officers and noncommissioned officers are specialists in a particular field. To be promoted to lieutenant colonel and colonel, officers must pass a comprehensive examination covering the employment, logistics, duties, responsibilities and functions of each of the seven groups. The Army's educational system has been completely revised to assist both officers and men in attaining their required skills. Each is educated and trained for assignment to one of the seven groups shown on the chart. A noncommissioned officer always functions in the same capacity.

"Our mission is to destroy the enemy by shock action, fire and maneuver, or to repel his assault by these same methods. We are able to conduct all types of ground operations; we can act alone and sustain ourselves in combat, or we can work as part of a larger force. Our flexibility assists us in accomplishing any assigned task.

"We, the 8th Battalion, derive our tradition, history and colors from the famous old 8th Infantry Regiment. We indoctrinate all officers and men with the spirit of Churubusco, Chapultepec, Chancellorsville, Normandy, and NATO's mission in Germany during the 1950s. Regular Army battalions in today's Army acquired their heritage from famous regiments of the past.

### Intelligence and Operations

"Lieutenant Colonel Roth, Intelligence and Operations Officer, will now give you a general picture of his duties and responsibilities."



"Colonel," Roth began, "I am responsible to you for Groups Alpha, Bravo, Charlie and Delta. We don't use the terms 'company' or 'battery' any more. I also control the Training and Operations Section. The four combat groups are separate TOE units which can be assigned to any battalion.

"Major Flynn, battalion S2, commands Group Alpha. In it he has an Intelligence and Reconnaissance Section of trained intelligence and demolitions specialists, similar to the Rangers and paratroopers of the 1950s. They can be either air-dropped or air-landed into enemy territory by light aircraft. They set up observation and listening posts, and harass enemy rear installations. They have excellent medium-range radios of the new lightweight series to keep us constantly informed on the progress of their mission. These men are also trained to conduct ground patrols, either combat or reconnaissance, into enemy positions to seek specific information or to locate and/or

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**Lieutenant Colonel G. Harry Huppert** was commissioned in the NYNG in 1940 after six years of enlisted service. He has been a platoon leader, company commander and S3 of a tank destroyer battalion, and during World War II served as assistant G3 of XXI Corps and as battalion executive and commander in the 84th Division in ETO. He was integrated into the Regular Army in 1946. Postwar details included several staff and battalion command assignments in Korea and Europe. Colonel Huppert has been an instructor at the Tank Destroyer School and at Leavenworth. A graduate of TIS, CGSC and AFSC, he was executive and commander of the 74th RCT before becoming a student at the Army War College last August.





**The mission of the fighting teams of 1977 would have a familiar ring to the ears of the soldier of 1957: "to destroy the enemy by shock action, fire and maneuver, and to repel his assaults by these same methods."**

harass enemy positions. Major Flynn also has in his group an Intelligence Section of trained IPW, OB, and photo-TV interpretation technicians. Their duties and functions are generally the same as in the units of the 1950s. All Groups Alpha in the Army today are constituted similarly. They can operate with any battalion. On some missions we may have two Groups Alpha assigned, while on others we may have none.

"Major Mullaney, S3, directs Group Bravo. He has a Tank Section of ten vehicles similar to the old M48 but considerably lighter. He has a Mortar Section of nine weapons designed on the principles of the now obsolete 4.2. They are made of light stainless steel and are mounted in full-track vehicles

like the old M59 personnel carriers. They can fire small atomic projectiles. Also in Group Bravo is the Recoilless Rifle Section of twelve multibarreled weapons mounted on new lightweight plastic-enclosed vehicles. The weight of these rifles has been considerably reduced from that of the old 106mm by the discovery and manufacture of new lightweight metal alloys. Group Bravo also has a section of six rocket launchers mounted in full-track vehicles. Each launcher can fire thirty-six high-trajectory and high-velocity rockets. These rocket launchers tow ammunition trailers, as do all other vehicles of the combat groups. Most of the space within these vehicles is used for storing rockets, which are considerably smaller and lighter than those we had

ten or twenty years ago when the art of rocketry was fairly new. Each launcher has its own electronic range computer. The tank gun and the recoilless rifle also have automatic tracking devices.

"The last unit within this group is the Security Section of six five-man squads, all of whom are armed with the new sonic-ray gun which temporarily deadens the nervous system of anyone coming in contact with the ray. The ray is presently effective only up to a hundred yards. These security squads are particularly effective in the final effort of shock action when our vehicles have overrun the enemy. They also place demolitions, establish hasty electronic-type minefields, and furnish local close-in protection against enemy

ground troops, saboteurs, guerrillas, bypassed enemy groups and enemy stragglers. They are transported in full-track covered personnel carriers, and can also move by helicopter (jet-o-copter) and aerocycle.

"As you can see, each section can be subdivided as the commander sees fit, to form small task forces, usually three balanced teams. This follows the old triangular concept.

#### **More eyes and ears**

"Group Charlie is under Major Anderson, the Air Officer. He has four sections: the Evacuation and Resupply Section, the Reconnaissance Patrol Section, the Observation Section, and the Supply and Maintenance Section. Because of the peculiar nature of Group Charlie's supply and maintenance problems, it is the only group in the combat echelon with this supply function. The Recon Patrol Section transports the I&R and the Security Section men from one point to another. In the Observation Section are fixed-wing jet-copters and individual aerocycles. All these light aircraft, including the aerocycles, are equipped with radio communication and tactical TV sets. Thus we have multiplied our eyes and ears tremendously over the old infantry and artillery observation systems. We have also increased the scope and reduced the time required for patrol and reconnaissance missions.

"Group Delta, under Major Keough, is the communications unit. Within it is a Radar Detection Section. This unique outfit is something like the counterfire platoon of the old infantry regiment and the radar section of the former artillery battalion. In addition, it can establish electronic listening posts and radar screens to detect air and ground movements up to a twenty-mile radius. Of course, we can differentiate between friend and foe. From it our fire control center of the T&O Section gains much of its firing data. This section also operates the tactical TV equipment.

"The other unit in Group Delta is the Radio-Radar Countermeasure Section. It can jam enemy electronic devices up to ranges of ten to fifteen miles. It can also intercept radio transmission up to about fifty miles, and it has electronic devices by which it can insure our radio transmission even though the enemy jams our frequencies. It also handles teletype and microwave equipment. The assignment of

operating frequencies and frequencies to be jammed must be carefully coordinated.

"Since our primary means of communication is radio, each vehicle and each man has a set. The personal radios are of wrist, helmet, or pocket size. Industrial progress has increased the capabilities of the receiver-transmission unit, while reducing size, weight and maintenance problems.

"Under my supervision is the Training and Operations Section. These officers and men, who are a permanent portion of the TOE of the 8th Battalion, perform the same training, administration, fire-support coordination and operational duties as did the old battalion and regimental S2 and S3 sections. Also in this section is the Air Controller for the Army's high-performance, close-support air.

"You will note that Groups Alpha, Bravo, Charlie and Delta are separate, distinct units. Each may be shifted to other battalions as the situation dictates. Each has great cross-country mobility, is light enough to be air-transported in Army troop-carrier aircraft, and the vehicles afford excellent protection for personnel and equipment against atomic blasts. All vehicles can ford shallow rivers and a few have lightweight bridging equipment attached.

#### **Tactical employment**

"I plan to brief you thoroughly tomorrow on the tactical employment of these various units. However, generally speaking, in the attack we strive for speedy movement, rapid shifting of massed fire, envelopment of the enemy's flanks, deep penetration to throw him off balance, and constant wide dispersement of all echelons. Radio is our major means of control. We move too fast and over too great distances to rely on wire. In defense we utilize key terrain features, around which we employ the 360-degree all-weapons system—the 'ball of fire' principle. Our theory is to block main avenues of approach, thus forcing the enemy to operate over terrain of our choosing, where by our radar and visual air observation we can detect him, then channelize and destroy him by both direct and indirect fire. Mobile defense in depth is a necessity. Here again, we may break our combat groups into smaller, self-sufficient, all-type weapons teams for this defense in depth.

"Control, flexibility, mobility, ter-

rain, and dispersion are our watchwords. In training we stress individual actions and decisions by small-unit commanders. As you can note from the chart, all sections are commanded by captains, with lieutenants in charge of the various squads.

"We are indoctrinated in rapid reaction to the unexpected. Changes in the prearranged plan are usually the rule rather than the exception. Once in action, oral orders and hasty reports are our operating media. As we move and fight from our armored full-track vehicles and are clad in lightweight protective clothing, enemy CBR action does not seriously affect our mobility and efficiency. We are prepared to fight simultaneously toward all five directions: front, rear, left, right, and overhead. Each man is imbued with the 'Pride in Self, Pride in Army' attitude.

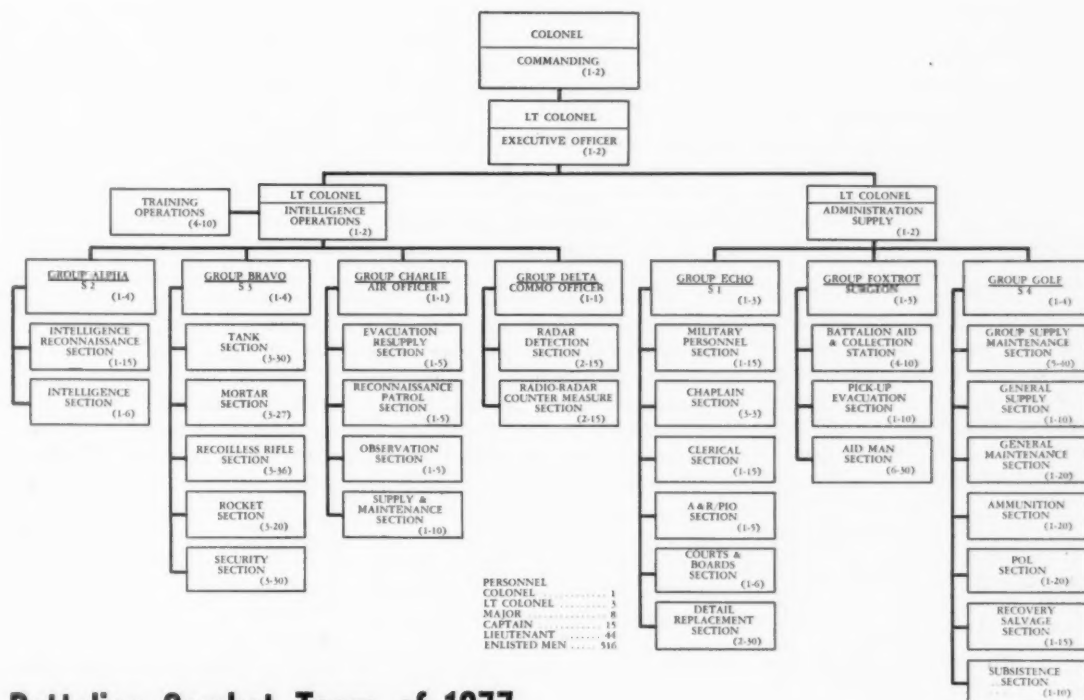
#### **Supporting forces**

"To support us, the CG of any combat command has, organic, a medium-range rocket group, a tank unit of thirty-six vehicles, and a jet-o-copter unit. This air unit can transport the Security Section of any Group Bravo, and it is also an additional resupply and evacuation means. This gives the CG of the combat command the ability to influence the action through additional shock action, mobility, and fire power. Guided missiles and atomic weapons are controlled by the division commander. At that level is also a unit of jet-o-copter transported raygun-bazooka men. Battalions deal through the combat command in all tactical matters.

"That, Colonel, is a brief summary of my intelligence and operations duties. Lieutenant Colonel James, in charge of administration and supply, will brief you on his duties and functions."

The new battalion commander turned off his automatic note-recorder and said:

"Colonel Roth, that was a fine presentation. I see that the Army I knew as a lieutenant back in the 1950s has undergone radical changes. My father used to tell me how the old horse cavalymen, the opponents of the battleship, and the skeptics who thought aircraft would never influence battles, fought the advancement of modern military science that helped us win World War II. I also remember as a youngster hearing how the guided mis-



## Battalion Combat Team of 1977

sile and the atomic bomb alone could win any war. It seems now that the people in the Pentagon have overcome all the interservice and interbranch rivalry and have moulded together a real fighting team.

"It's hard to realize that caliber .30 weapons and the 105 howitzer are just relics, but since the enemy has completely mechanized his forces, it's understandable. The transition has been difficult, but it looks as though we really have an organization that can survive and win on the battlefield in the face of superior enemy numerical strength in weapons, matériel and manpower.

"Before Colonel James proceeds, let's pause for a cup of coffee. Sure glad that custom hasn't changed! By the way, I'd like to thank you gentlemen and your ladies for the fine reception you tendered my wife and me last night. I'm glad to see the Army is going back to its old social customs. The development of not only a professional spirit but of a socially homogenous group of officers and ladies is vital in maintain-

ing the *esprit de corps* of a unit.

"All right, Colonel James, let's hear from you."

### Administration and Supply

"Sir, I am in charge of all your administration and supply. The application of those two operations can spell the difference between success and failure of any operation we may undertake. Roth's combat groups can't function unless they receive the administrative and logistical support necessary to maintain their fighting efficiency. The operations officer must coordinate closely with the logistical people. I guess that's been true in all armies since Hannibal. We deal directly with the Logistical Command in all personnel and supply matters. The basic theories have changed little. However, the methods for accomplishing them have been drastically improved during the past fifteen years.

"Major Birch, S1, commands Group Echo, the administrative unit. Under his control is a Military Personnel Section with IBM machines and other

electronic devices, a Chaplain Section, and a Clerical Section. These three sections have functions similar to those we knew in the old divisional and regimental organizations. Note from the chart, however, that three new sections—new at least at battalion level—have been added: an A&R/PIO Section, a Courts and Boards Section, and a thirty-man Detail and Replacement Section. Even in the old days these functions had to be performed, but at battalion level no TOE allotments were made, so men had to be taken from other essential jobs to perform them. Some of the garrison functions of the Detail and Replacement Section are to furnish personnel for the small battalion band, for police, guard, prisoner-chasing, building firemen, and repair and utility teams, while in combat they act as local security, augment the Security Section, handle and evacuate POWs, and assist Group Golf in its supply and maintenance duties. This section also is a source of temporary replacements for all groups.



"Next is Group Foxtrot, the medical unit, commanded by Major Yost, which, as the chart shows, has three sections. The Battalion Aid and Collection Station does all the work aid stations have always done. There is a Pickup and Evacuation Section. Because we are spread over a considerable area, both laterally and in depth, casualty evacuation to the Battalion Aid and Collection Section is extremely difficult. Most of the collecting is done by jet-o-copter and quarter-ton, plastic-enclosed ambulance jeeps. Evacuation to the rear is normally done in the same way, with emphasis on the larger-type jet-o-copter. The third section in the medical group is composed of the aidmen, who, as in the past, are sent to the various groups in the battalion. This affords medical aid, on the spot, to all echelons. Note further that all aidmen carry small radios which can make contact with both the battalion aid station and the pickup and evacuation jet-o-copters, so that rapid treatment and evacuation are assured.

#### Logistics Group

"Group Golf is by far the largest within the battalion. Major Galloway, S4, is its commander. Each section in each of Groups Alpha, Bravo, Charlie and Delta has its own maintenance and supply unit. It is necessary to have trained specialists who can maintain all the various electronic devices and full-track vehicles within a unit. Also note from the chart that we have a General Supply Section and a General Maintenance Section. These two handle items common to all groups and sections. They assist the specific group sections in obtaining spare parts, tools, and other vital equipment, and do repair work. Major repairs are done by the Logistical Command. We utilize unit replacement to a great extent. Besides these sections, we have an Ammunition Section and a POL Section. When you inspect the units you will see that we have a large number of full-track vehicles which can constantly resupply ammunition to the fighting elements. Ammunition is transferred from the ammo carrier to the combat vehicle by a conveyor belt, not by manpower. We are unhappy with trailers because they reduce our speed and mobility. Also, as ammunition is now much lighter than it used to be, a considerable amount of resupply can be done by the Air Group. All ammunition has the same charac-

teristics: armor-piercing nose, followed by four separate compartments containing, in order, HE, WP, nerve gas, and smoke of a different color for each purpose. The shell can be set for any type detonation and any compartment can be disarmed before loading in the weapon. The propellant case is consumed when the round is fired. Some day we hope to have just one caliber for all weapons.

"POL is no longer distributed by the five-gallon-can system. We now resupply from full-track POL carriers and, if necessary, from jet-o-copter, even when on the move. New types of engines and fuels have increased the mileage per gallon of fuel. Conversely, this has reduced the previously high consumption of POL. We expect in the near future to have all vehicles propelled by atomic energy. Doing away with liquid fuels will tremendously reduce our logistical headache.

"The Recovery and Salvage Section is just what its name implies. In training, emphasis is placed on rapid recovery by vehicle or jet-o-copter, and rehabilitation of items damaged by atomic action. In garrison the Subsistence Section is responsible for all rations and messes. In the field this section delivers to the units concentrated food and water in small, portable electronic cookers. Of course, you know that both water and food combat rations consist of small pills, similar to vitamin tablets, which each soldier carries in a pocket. A man can live for more than a week on no more rations than these pills. Of course, they can't replace good hot food, but they are much better than the old C and K rations.

"One of the biggest complaints, initially, was that commanders of our combat groups did not control their own supply facilities. However, experience has shown that specialization, close cooperation and understanding of one another's problems have reduced the disadvantage to a minimum. The advantage of having supply and maintenance of all units, except for items peculiar to the Air Group, under one head who maintains records and controls paperwork, far outweighs the loss of command prerogatives by the combat group commanders.

"As you know, too, most Reserve and National Guard units are now organized along the lines of these various groups. We can obtain trained replace-

ments either by rotating an entire combat or administrative group, or by receiving individual replacements to fill specialist requisitions.

"Normally, Groups Echo, Foxtrot and Golf stay with the battalion to which they are assigned, a different procedure from that under which combat groups work. However, Echo, Foxtrot and Golf can be shifted from battalion to battalion as the situation demands.

"You see that the battalion's strength is approximately 590 officers and men, a considerable saving in manpower over the infantry battalion of the 1950s. However, it is also true that we now have many more complicated electronic devices, more aircraft, more larger-caliber weapons and more than twice the number of vehicles—approximately 140 full-track and 50 wheeled. Naturally our technical supply problems are much greater. The Navy and the Air Force can no longer claim that they need all the higher-caliber and better-educated men because of their technical skills. Here at the lowest echelon we have just as great a need for the best types of young American as any other military or industrial activity.

"Sir, the group commanders will be glad to give you a detailed briefing on their particular units at your convenience. Each of them is a two-hatter: he is your advisor in his specialty as well as a group commander."

#### Only techniques have changed

"Colonel James," said the new battalion commander, "thank you very much. I must agree with you: the old services still remain, but their methods of support employment have changed radically."

Here Lieutenant Colonel Pickett broke in:

"Colonel, may I butt in for a second? So long as we can maintain control, insure flexibility, demand dispersion, utilize the terrain to our advantage, mass our fires accurately, are never surprised ourselves but always surprise the enemy, react rapidly to the unexpected, have leadership and spirit, and keep constantly moving to the front and flanks, you can rest assured your battalion will be able to accomplish any assigned mission. As you see, doctrine and principles are generally the same; only techniques have changed.

"Sir, we're glad to have you with us."



# The AIR DEFENSE MUDDLE

*An exhaustive inquiry into the background of the troubles that today beset the organization of CINCONAD.*

**JONATHAN CARMEN**

**F**ROM the time the Russians developed their own atomic weapons, those who tried to provide a sound, adequate air defense system for American cities have been troubled by conflict and confusion. What this has cost the American taxpayer no one could possibly estimate, but one certain result is that there has been delay in providing the kind of an air defense this country must have.

In the beginning the conflict was between the few military men and scientists who believed an effective air defense system was possible and had to be developed if the nation were to survive, and those who believed our only defense was a powerful SAC and wanted all appropriations channeled into more and bigger bombers. This conflict was finally resolved by the logical decision that both were required. A beginning was then made in the development of a North American Air Defense system.

By 1950 there were two major commands concerned with the defense of CONUS against air attack. These were the Air Force Air Defense Command (ADC) and the Army Antiaircraft Command (ARAACOM). At first the Air

Defense Command played a predominant role, because the Army was just beginning to build its AA defenses. The control of these AA defenses, however, quickly became a major issue. Since airmen believed that the only possible air defense weapon was the interceptor, and anti-aircraft artillery was a nuisance which should only be used as a last resort, and then only when it wouldn't endanger the interceptor, they sought to gain dominance over anti-aircraft artillery defense installations.

The airman was reluctant or refused to see and accept the full impact of technological advances in electronics and missiles, particularly as applied to ground to air weapons. The soldier on the other hand was alive to the possibilities of the new technology and quietly proceeded to develop a sound ground-to-air air defense system. The soldier also recognized the dangers of the unilateral air defense command and after several bitter fights two important inter-service and inter-command agreements were made. These agreements were the Vandenberg-Collins Agreement of 1950 and the Chidlaw-Lewis Agreement of 1952. The concept contained in these agreements was provided for in the Key West Agreement in 1948. It evolved from years of experience in the antiaircraft field. These agreements provided that ADC, as pertains to Army antiaircraft, was responsible for Early Warning, Identification of Targets and Conditions of Alert. The exact degree of operational control to be exercised over antiaircraft defenses was very carefully spelled out and in effect announced the conditions for the engagement and disengagement of antiaircraft weapons. This degree of operational control allowed the Army Antiaircraft Defense commander sufficient freedom of action to exploit the maximum capabilities of his weapons. This arrangement, though admittedly imperfect, was workable and did work until the impact of significant events which had been taking place became clear. These events were:

- ¶ The overwhelming success of the Nike guided-missile system, and its widespread tactical deployment in CONUS.
- ¶ Failure of the Air Force Bomarc guided-missile system to live up to predictions.
- ¶ The emergence of Soviet bombers that could outperform our fighter aircraft.
- ¶ The establishment of CONAD.

In many ways the controlling event is the one listed first. The overwhelming success of Nike and its widespread tactical deployment gave the defense a tremendous advantage. Even the most modern bombers could not hope to survive in a true Nike environment. The fighter aircraft was no longer the most effective air-defense weapon.

One unseemly result was a whispering campaign against the Nike. This intense campaign was carried on from many echelons. The former Secretary of the Air Force, Harold Talbott, was quoted in the press as expressing grave doubt about the Nike because it could be easily fooled by electronic countermeasures. This disregarded Nike's fire-control system—the most advanced in operational use today. With trained operators, the Nike guided-missile system can successfully overcome all electronic countermeasures now operational. In addition, it has successfully intercepted drone targets employing countermeasures with no lessening of effectiveness. Tactically speaking, electronic countermeasures simplify the missileman's task, because they positively identify the target as hostile.

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**Jonathan Carmen** is the pseudonym of a Washington writer who has had more than ten years of active duty service in the Army.

The anti-Nike campaign focused on the system's alleged inability to intercept high-performance targets (jet drones in the 400- to 600 miles-an-hour class). During the early phases, this had the ring of truth simply because suitable high-performance targets were not furnished. When the high-performance target drones were made available, they were of the most difficult type, whose reflective surface (radar-wise) was only a fraction of that of a modern bomber for which the Nike system was designed. Despite this, the Nike successfully destroyed every type of high-performance drone (including the Matador) pitted against it. At this point, the anti-Nike tactics shifted slightly. Wide publicity was given to a few unsuccessful missile firings (almost all resulting from personnel error and not equipment failure), and completely ignored the overwhelming number of successful Nike intercepts. It is significant that an analysis of all Nike firings shows that the Nike guided-missile system is much more effective against high-performance targets than against those in the 200 miles-an-hour class. Many Nike firings were conducted against high-performance targets using evasive tactics, and no difficulties whatsoever were experienced in destroying them. If anything, the tests have shown that evasive tactics tend to increase Nike's effectiveness, because the targets spend more time within effective range. It is not dogmatic to assert that any aircraft known to be in operational use today can be outmaneuvered by the Nike. Since no physical targets were furnished which could really tax the Nike guided-missile system, the testing agencies resorted to simulated targets with capabilities far beyond that of any tactical aircraft in operational use anywhere today. Again, the Nike lived up to expectations and successfully intercepted the simulated targets.

Despite all this, the anti-Nike campaign spread the word that the Nike system was too complex, untested, and therefore unreliable. The Nike guided-missile system is only a little more complex than the fire-control systems used for years by antiaircraft gun units. However, when compared to any of the other surface-to-air guided-missiles systems, it is the least complex of all, and utilizes components of proven reliability. This is the main reason why the Nike was operational years ahead of any other system and can be operated by trained soldiers without a highly technical background. Nike missiles numbering in four figures have been fired against all types of physical and simulated targets, flying at all practical altitudes and speeds. In each case, the Nike guided-missile system more than proved itself.

Nike is not infallible, but its effectiveness and capability are far superior to any other surface-to-air missile system which is in existence, or will be in the next few years.

**T**HE second significant event was the failure of the Bomarc guided-missile system to live up to expectations. To put all this in perspective, it must be reported that during the early research and development days of surface-to-air missiles systems, the Air Force wasn't concerned about Nike. It estimated that its Bomarc would be available for tactical use in the same time-scale (or shortly thereafter). However, the estimates proved to be somewhat inflated and the Bomarc program fell far behind if not virtually flat on its face. Further, the early estimates were missed by so wide a margin that there is a strong possibility that by the time the Bomarc becomes operational, enemy targets will be capable of outperforming it. This should be particularly

disconcerting to the taxpayer because nearly as much money has been spent on the research and development of the Bomarc as the Army has spent in deploying all its many operational Nike units, including cost of Nike missiles, equipment, real estate, site construction, and quarters.

The airmen turned from Bomarc to the Navy's Talos guided-missile system which was being developed for ship-board use because it needed an interim missile. In 1955 the Air Force was authorized to supervise certain phases of the Talos R&D program, so as to get experience for the Bomarc. Soon thereafter the Air Force announced that it would use Talos in a surface-to-air role in CONUS, and even in areas where their fire would overlap existing and future Nike defenses. This brought the entire problem into the open. Congress wanted to hold up appropriations for the Nike program and give it to Talos. Some Congressmen, being more practical-minded, demanded that a test be conducted to determine which was more effective, Nike or Talos. But this, it developed, was impossible, because the first land-based Talos guided-missile system was yet to be built. Indeed, it was still in the research and development stage when the announcement was made that it would be used by the USAF. It is unusual to perfect plans for the operational use of a weapon before it is developed, including seeking money for sites and installations. And the unusual becomes amazing in view of the fact that the Navy was not giving the Talos the capabilities which were being credited to it. Talos capabilities, as announced by the Air Force, were almost invariably those of the ultimate Talos system, the one which is many years away, provided, of course, it proves out. Normally these ultimate capabilities were compared with the Nike system which has been in tactical use for several years and not with future Nike systems which would be available on the same time-scale. When compared to the Nike B, which will be available in about the same time-period as the *early* Talos system, the picture comes into truer focus. A study of the relative characteristics brings to light the interesting possibility that the Nike B could probably successfully intercept and destroy both the Talos and Bomarc. In addition, the Nike B missile could be used in a surface-to-surface role, would be mobile for field army use, and could even be modified for use in the anti-ICBM role, all of which do not appear practical with the Bomarc or Talos systems. This does not even consider the more sophisticated Nike II whose capabilities would be considered fantastic indeed, by comparison.

It is true that the DOD decision announced on 27 November 1956 gives the surface-to-air responsibility to the Army, and in theory this should settle the question. In view of the CONAD command structure, however, the operational control of these missiles may still be in the hands of the Air Force, even though clothed in the paper respectability of a "joint" command.

**T**HE third event is a forcible reminder of the great stakes in this situation. The Soviets began putting the Bison (similar to our B-52) into operational use in significant numbers. The Commander in Chief of CONAD has told Congress that we do not have a single operational fighter capable of reaching the operational altitude of this plane. On the other hand, both the Secretary of the Army and the Chief of Staff of the Army have stated before Congress that the Nike could effectively engage and destroy the

Bison, or any other bomber the USSR could have in operational use in the near future. It is amazing that although these were public announcements, most people still think the fighter aircraft is our principal air-defense weapon.

Truth is, technology has reached the cross-over point and never again will the manned fighter aircraft reach the performance level of the big bomber or guided missile. The Secretary of the Air Force and the Chief of Staff of the Air Force both predicted that a sizable cut in tactical aircraft will take place, and that these aircraft will be replaced by guided-missile systems. Some are trying to prolong the life of the fighter aircraft by equipping it with air-to-air guided missiles of the Falcon type. However, the value of an air-to-air missile is only marginal, since its effectiveness is directly dependent upon the capabilities of the mother aircraft.

**A**S the significance of these events became obvious the Air Force turned to the problem of how to gain absolute dominance over the use of surface-to-air missiles.

Knowing the Army's belief in unified commands, the Air Force began to agitate for the establishment of a joint command for the air defense of the U. S. In 1954, by Department of Defense decision, a so-called joint command was established. A brief examination of the way this command was organized reveals its true nature. The commander of the Air Force Air Defense Command (ADC) was also designated as Commander in Chief, Continental Air Defense Command (CINCONAD). The ADC staff, augmented by a handful of Army and Navy officers, doubled in brass as the CONAD joint staff. Every position of authority was filled by an Air Force officer. Subordinate air-defense air forces and air divisions utilized the existing one or two Army "liaison officers" and thereby became "joint" commands. This gave the Army a representation of less than one officer to every seventy Air Force officers on "joint" staffs, although the troop strengths by this time were on a ratio of three Army to five Air Force. The Army was forced to accept this arrangement, but pinned its hopes for survival in the missile field on the clear understanding that all existing inter-service and inter-command agreements would remain in effect. It was also understood that any matters pertaining to the Army would be coordinated with the Army Antiaircraft Command. This procedure was, in general, followed for about a year, and then the blow fell. In their search for a means to survive, the airmen now had a very powerful weapon: CONAD and its 98 percent Air Force Staff. The joint tag of CONAD began to be used indiscriminately and in its name the Air Force began attempts to usurp authority and prerogatives never intended or envisaged in the CONAD "terms of reference." Increasing pressure was placed on the commander of the Army Antiaircraft Command. Attempts were made to force the abolishment of antiaircraft operations centers, to move subordinate antiaircraft commands, and to deny to the Army equipment which the Army needed to operate efficiently and economically its local "point" defenses.

A prime example of interference in Army AA affairs was the decision of CINCONAD that the air defense of the U. S. had no need for the Army's Missile Master system which is designed to provide the best possible information to the Nike guided missile defense. Instead the Army

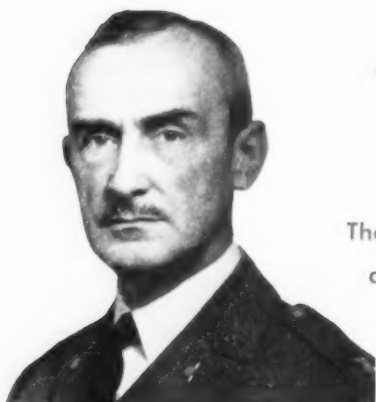
was to accept centralized control through the Air Force developed SAGE. The Army's position was that the SAGE system could not control effectively antiaircraft fire in a tactical situation and the requirement for Missile Master was mandatory to complement, supplement, and in an emergency to replace SAGE. Many air defense experts maintain that SAGE as envisaged by CONAD will not work. As a matter of fact, the entire SAGE program has slipped, and there is a possibility that it may end up as a peacetime air traffic control system in the hands of CAA.

Recently CINCONAD did agree to some Missile Masters, but wants Air Force units to man the prime radars for each system. The Air Force also still wants control over the organic surveillance radars of the AA defense. A great deal of the fault for the muddle has been the Army's past failure to recognize where all of this was leading. During 1955 and early 1956, only through the almost superhuman efforts of the Commanding General, ARAACOM, was disaster averted. Finally, however, the Department of the Army became aroused and pitched into the battle. As a result, there was, in the summer of 1956, a surface coating of sweetness and light. During this lull, however, a reorganization of CONAD has been under way.

**I**N September new terms of reference for CINCONAD were implemented by DOD decision. These terms of reference call for the establishment of a real joint headquarters divorced from ADC. ADC becomes a component command on a level with ARAACOM. The number of Army and Navy officers in CONAD has been increased, and it is the pious hope of the Army that true joint decisions can be reached. The more practical—or cynical—Army officers, particularly those who have been through the other battles, point out that all really key positions in CONAD are still filled by Air Force officers, and the new terms of reference give CINCONAD almost unlimited authority to deal with Army antiaircraft matters. The old carefully worded definition of operational control has been abandoned, and CINCONAD's authority is spelled out in great detail. In addition, the direction centers, air defense wings, and air divisions are all Air Force, with one or two Army officers in "liaison" positions only. Even in the new proposed "joint" subordinate headquarters, Air Force officers are in command and in all positions of authority. In the new CONAD the only position occupied by an Army officer is that of Chief of Staff. In Air Force terms, a chief of staff is little more than an adjutant general with no voice in policy matters, and whether or not the new chief of staff can actually operate as a true chief of staff rather than an adjutant general remains to be seen.

To what extent the reorganized CONAD will be truly joint cannot as yet be determined. The opportunity to establish a sound, economical air-defense system is now available. The basis for such a defense is, of course, the surface-to-air missile, an Army weapon. If the Air Force continues to retain command at all echelons and continues to hold all staff positions of authority, and if the Air Force partisans continue to push unilateral decisions, however, the real losers will be the American people. Billions of dollars are being spent for air defense, and unless CINCONAD operates on the basis of providing the best defense for the country, as opposed to vested interests, the American people will not get what they are paying for.





## "Mr. Gruber, Write a Song"

The original version of what is now the official Army song was written and composed by a young lieutenant at the request of his regimental commander. Here's the story of how he performed his mission

**BLAKE LEE**

**B**ACK in 1908, in the Philippine Islands, Lieutenant Edmund L. (Schnitz) Gruber, 5th Field Artillery, had a problem. His regiment would be assembled as a unit for the first time, when the 1st Battalion arrived from Stateside to relieve the 2d. A desirable feature of this historic occasion seemed to be the launching of a regimental song and, as Gruber said years later, "I was told to write one."

Mr. Gruber, as lieutenants were addressed in those days, was accustomed to doing what he was told, but this was

**Blake Lee** is the pseudonym of a retired officer who had long service in the Field Artillery.

a situation that required more than a disciplined mind and body. He needed inspiration.

Searching for a beginning, he remembered that during a difficult march by his battalion from its station at Camp Stotsenburg over the Zambales Mountains to the China Sea, he had been in charge of a reconnaissance detachment that moved ahead of the main body to select the route and to make minor improvements on the rough mountain trail. Climbing a peak not far from the trail, he had looked over the country ahead and searched the route for signs of his battalion. He couldn't see it, but listening carefully, he heard the rattle and rumble of gun

carriages and caissons. He wondered aloud if the troops would be stopped by the rough going and steep grade. The sergeant with him answered confidently, "They'll be all right, Lieutenant, if they keep 'em rolling."

Gruber remembered that "keep 'em rolling" was a phrase often used by officers and noncommissioned officers of his regiment when the going got tough, and felt he had a starting point for his song. Later, several officers helped him write a first verse and a chorus. He set the words to music written in march time and called the result "The Caissons."

From time to time Gruber added verses, including the memorable:

### THE FIELD ARTILLERY SONG

#### "The Caissons"

By Edmund L. Gruber

Over hill, over dale, we have hit the dusty trail,  
And those caissons go rolling along.  
"Countermarch, Right about," hear those wagon soldiers shout;  
While those caissons go rolling along.

#### CHORUS

For it's Hi-yi-yee! In the Field Artillery,  
Let us call off our numbers loud and strong  
[Spoken: Call off!]  
And where e'er we go, everybody shall know,  
That those caissons are rolling along.  
[Spoken: Keep 'em rolling!]  
That those caissons are rolling along.

To the front, day and night, where the dough-boys dig and fight,  
And those caissons go rolling along,  
Our barrage will be there, fired on the rocket's flare,  
While those caissons go rolling along.

With the cavalry, boot to boot, we will join in the pursuit,  
And those caissons go rolling along.  
Action front, at a trot; volley fire with shell and shot,  
While those caissons go rolling along.

Should the foe penetrate, every gunner lies in wait,  
And those caissons go rolling along,  
Fire at will, lay 'em low, never stop for any foe,  
While those caissons go rolling along.

But if fate me should call, and in action I should fall,  
Keep those caissons a'rolling along.  
Then in peace I'll abide when I take my final ride  
On a caisson that's rolling along.

[After last chorus]: Bat' -- try, Hal -- t!

*This is the wording of the lyrics General Gruber chose to publish in The Field Artillery Journal of July-August 1926*



(Official Song of the United States Army)  
**THE ARMY GOES ROLLING ALONG**  
 (Based upon "The Caisson Song" by Brig. Gen. E. L. Gruber)  
 Written, Composed and Adapted by  
 H. W. ARBERG

**INTRO.**  
 Col. #

**VERSE**  
 G<sup>7</sup> C  
 March a - long - sing out  
 F Dm<sup>7</sup> D<sup>9</sup> C Dm<sup>7</sup> G<sup>7</sup> C  
 song with the Ar - my of the free. Count the  
 G C  
 brave count the true who have fought to  
 D<sup>7</sup> E Dm  
 vic - to - ry. We're the Ar - my and proud of our  
 Am E D<sup>7</sup> G<sup>7</sup>  
 name. We're the Ar - my and proud - ly pro - claim -

**CHORUS**  
 C Cmaj<sup>7</sup>  
 First to fight for the right, and to build the Na - tion's  
 Forge, Cas - ier's ranks, San Juan hill and Pal - tu's  
 rage, men who freeze, Still that Ar - my met its

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**The Army Goes Rolling Along**

G C<sup>9</sup> Dm<sup>7</sup> G<sup>7</sup> C  
 night And THE AR - MY GOES ROLL - ING A - LONG. Proud of  
 tanks, And the Ar - my went roll - ing a - long. Min - ute  
 foes, And the Ar - my went roll - ing a - long. Faith in  
 Cmaj<sup>7</sup> C C<sup>9</sup>  
 all we have done, Fight - ing till the bat - tle's won, And THE  
 men from the start, Al - ways fight - ing from the heart, And the  
 God, then we're right, And we'll fight with all our might, As the  
 Dm<sup>7</sup> G<sup>7</sup> C  
 AR - MY GOES ROLL - ING A - LONG. Then it's  
 Ar - my keeps roll - ing a - long. Ar - my keeps roll - ing a - long.  
**REFRAIN**  
 C Dm  
 Hi! Hi! Hey! The Ar - my's on its way. Count off the  
 D<sup>7</sup> G<sup>7</sup> C  
 ca - dence loud and strong (Two! Three!) For wher - e'er we  
 E<sup>7</sup> F C  
 go. You will al - ways know that THE AR - MY GOES  
 G<sup>7</sup> C  
 ROLL - ING A - LONG. 1 and 2 4 4  
 C C<sup>9</sup> Dm<sup>7</sup> G<sup>7</sup> C  
 roll - ing! And THE AR - MY GOES ROLL - ING A - LONG!  
 1 Last ending  
 2 Val - ley in LONG. (Keep it  
 3 Men in

• Count cadence last time only.  
 •• Where more than one chorus is used, the introduction should be played as an interlude between  
 choruses.  
 Third Chorus follows, more freely!

But if fate me should call, and in  
 action I should fall,  
 Keep those caissons a'rolling along,  
 Then in peace I'll abide when I take  
 my final ride  
 On a caisson that's rolling along.

Today the caisson is used only for "final rides" at military funerals, but "The Caisson Song" has thrived. Conceived as a party song, it became the regimental march of the 5th Field Artillery—there were proud regimental bands in those days—and then spread to all the Field Artillery with a tremendous assist from John Philip Sousa, greatest of the "march kings," when he used the air in his "U. S. Field Artillery March." At informal Field Artillery parties, Gruber would sometimes demonstrate the very small change made by Sousa in this air. The rest of the march was, of course, pure Sousa at his best.

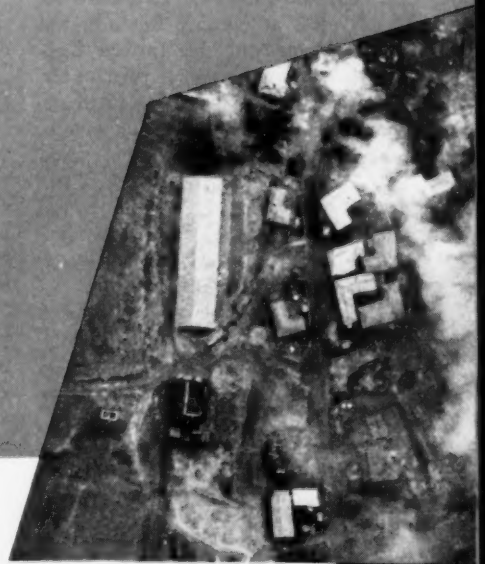
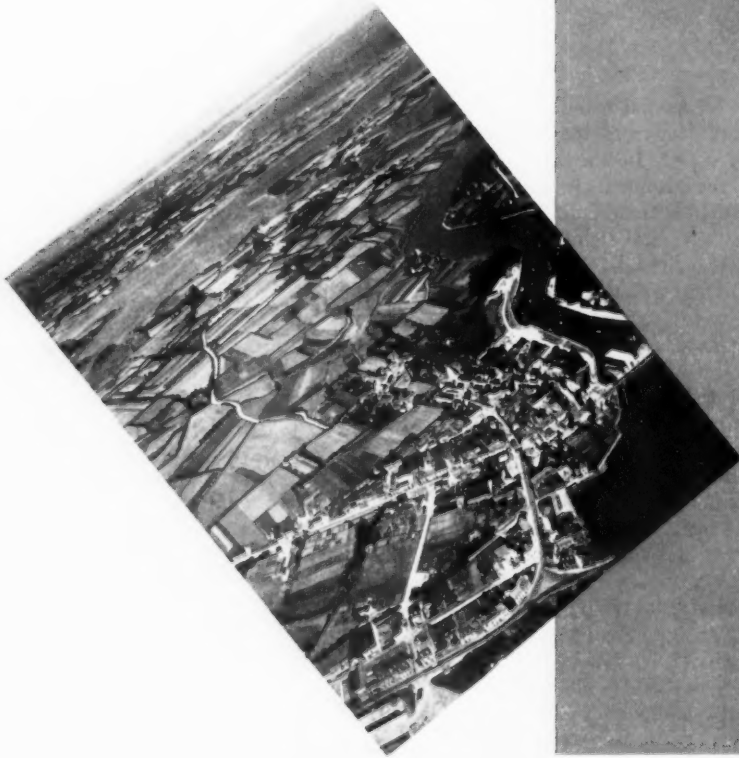
**I**N recent years the Army, like Lieutenant Gruber, has had a problem. Historically, particularly in European

armies, regimental marches have been important factors in the maintenance of unit esprit. In the British Army, where the regiment is more like a family than a tactical unit, regimental marches have real significance. In our army, tormented by inactivations, redesignations, and the passing of regimental bands, regimental marches generally (there are some notable exceptions) lost their importance. In the days of the horse, incidentally, some Field Artillery regiments passed in review at the walk to the tune of their regimental march, and then used "The Caisson Song" when they passed at the trot and gallop. In contrast with the highly popular and appealing songs of the other services ("Anchors Aweigh," "The Marines' Hymn" and "Semper Fidelis," and the Air Force song about how "off we go into the wild blue yonder") we had no all-Army song.

For the past eight years the Army has tried to do something about a song, but competitions, guidance from doctors of music and of philosophy, offerings from professional song writ-

ers, all failed to produce a satisfactory one. Nothing submitted—in the opinion of most soldiers, at least—was as good as "The Caisson Song." So now, by official decree, the Field Artillery is to share its song with the rest of the Army, under the title "The Army Goes Rolling Along."

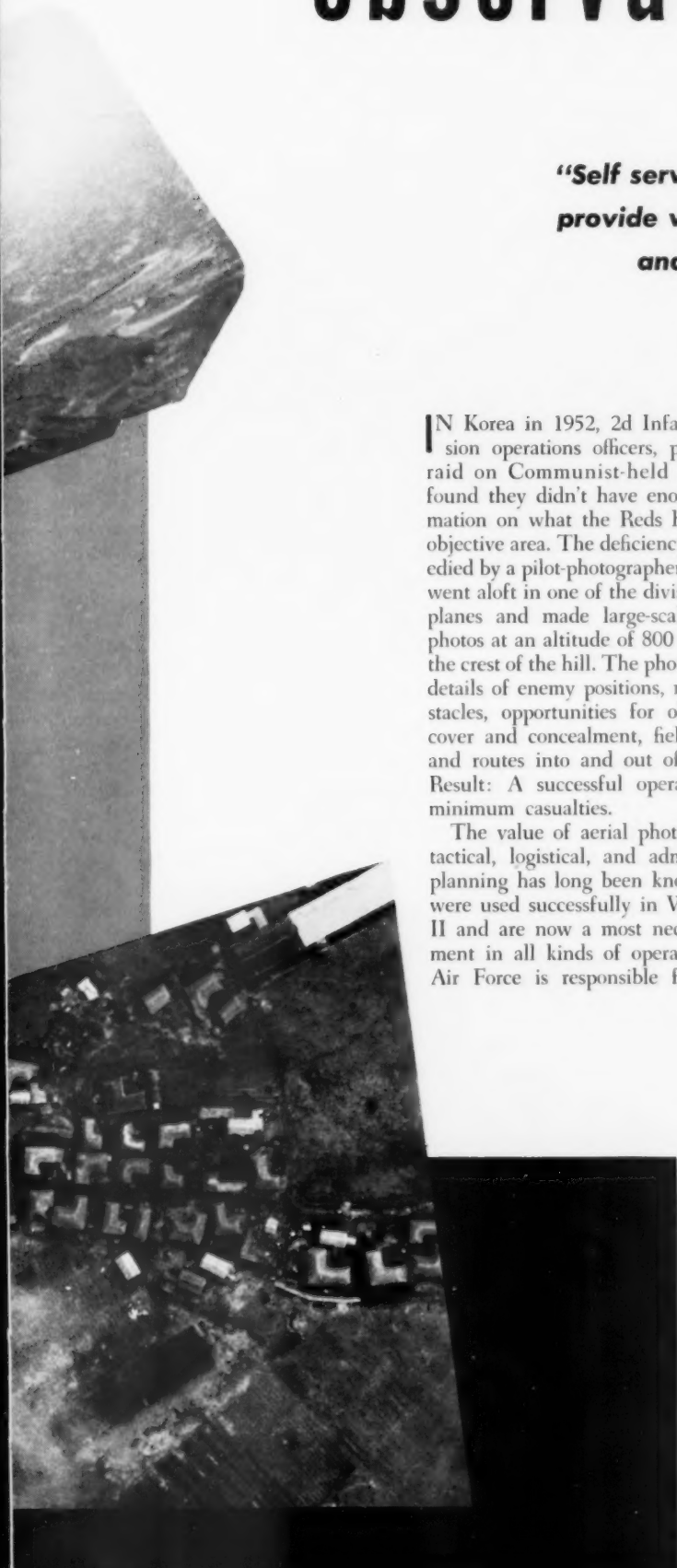
The 5th Field Artillery probably wasn't very happy when its regimental song was taken over by the whole branch; the Field Artillery branch was definitely not happy when a vacuum-cleaner company used its tune as a theme song for nationwide radio commercials; and gunners will certainly stick to their own words (with the final "Bat' - try, Hal - t!") when a convivial gathering reaches the singing stage. But now we have an official song with appropriate lyrics drawn from within the Army itself and revised and adapted by Dr. Harold W. Arberg, its music adviser. More important, the tune is a good one and it didn't come from Tin Pan Alley, but from the Army's own past. And it was written by a man who was all soldier.



# observation plus

MAJOR C. W. HUFF

***"Self service" organic aerial photo units can provide vital supplemental pictures of areas and actions. They're fast and practical***



IN Korea in 1952, 2d Infantry Division operations officers, planning a raid on Communist-held Hill 290, found they didn't have enough information on what the Reds had in the objective area. The deficiency was remedied by a pilot-photographer team that went aloft in one of the division's light planes and made large-scale oblique photos at an altitude of 800 feet above the crest of the hill. The photos showed details of enemy positions, natural obstacles, opportunities for observation, cover and concealment, fields of fire, and routes into and out of the area. Result: A successful operation with minimum casualties.

The value of aerial photographs in tactical, logistical, and administrative planning has long been known. They were used successfully in World War II and are now a most necessary element in all kinds of operations. The Air Force is responsible for general

aerial photo coverage for the Army, but this article is devoted to the possibilities of supplemental coverage by Army units for their own use. The example cited above was not an isolated case. Organic special photo coverage of small areas, objects, and actions was performed by all divisions in Korea. This "self-service" method developed from the need for fast production of specific large-scale aerial photos.

The regular and timely use of tactical aerial photos gave Army forces in Korea the means to "watch" the enemy down to squad level and to study closely his positions and actions. The large scale of the photos, flexibility in use of small aircraft, and quick responsiveness to local demand were the prime ingredients of the system.

This experience is being used today. Such "self-service" photography is considered part of future operational and staff requirements for more informa-

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**Major C. W. Huff**, Signal Corps, came into the Army as a private in 1942, attended OCS at Fort Monmouth and was commissioned in May 1943. He is a graduate of The Signal School and the Command and General Staff College. He earned the degree of Bachelor of Journalism from the University of Missouri (1936) and was a newspaper reporter and photographer before the Second World War. During the war he served in Europe in pictorial type assignments, and in the Far East with GHQ Signal Section and the 71st Signal Service Battalion. He is now in the Army Pictorial Service Division, Office of the Chief Signal Officer.

tion and more control. Dispersed combat and support elements must now operate faster, so they've got to have information fast. In many cases the problem may be to obtain information of the enemy—not just to the front, but to flanks and rear, too.

All this means that there will be a sharp increase in the need for aerial photos by combat-zone units as far forward as elements of combat groups or separate battalions.

#### **Tactical uses of aerial photos**

These get-'em-right-now aerial photos were produced by the teamwork of Signal Corps photographers, Army aviators, and G2 photo interpreters "living" near the line of contact. Their general knowledge of the terrain and action in their zone was immensely valuable. The applications of this type of aerial photography were as wide as the field of tactics. A few vivid examples are illustrated on these pages.

One particularly valuable use of photography from Army aircraft in a division's zone is the capability of taking advantage of short breaks in overcast and fog. The 2d Division used organic photography regularly for more than a month during July and August 1951, when bad weather prevented normal use of other means.

#### **Providing special-cover photography**

Army, corps and division commanders have control of aerial photographic equipment. Aerial photo equipment and photographers are provided for in the TOE (Army Signal Operations Battalion, Corps Signal Battalion, and Division Signal Company). Mobile laboratories are also authorized all these units.

Suitable aircraft are authorized ar-

mies, corps and divisions. And in the future, aircraft will be available from combat aviation companies.

For tactical and intelligence use of photos, a standard cycle of operation occurs from the time of initial request until delivery of prints or dissemination of information learned from them. If prints are required by the requesting unit, the photo lab can provide them quickly. This local system of procuring organic special photo coverage takes advantage of the presence of all personnel and equipment, and of the saving in time that results.

#### **Relation to Air Force photography**

Photos made by Army units supplement the more extensive general photo cover flown for the Army by the Air Force as a function of JAGOS. When extensive area coverage or deep penetration into enemy territory requires high-performance craft and large camera systems, it is standard procedure to relay requests back to G2 Air of the Joint Operations Center (JOC) for action by an Air Force mission. Prints in bulk lots for Army use from the resulting Air Force negatives are made by special reproduction facilities near Army headquarters.

During SAGE BRUSH a provisional Signal Corps unit, labelled "photo reproduction and delivery company," was tested along with a photo interpretation company in a provisional air reconnaissance support battalion employed at field army headquarters level. This company reproduced and delivered all photos made by the Air Force for Ninth Army (Provisional). The company's special laboratory equipment and aircraft speeded reproduction and delivery of photos made by the Air Force for the Army.

Selected prints made by Army facili-

ties should be sent quickly for use by ground liaison officers in briefing Air Force pilots working on close-support and air-reconnaissance missions.

#### **How to use organic aerial photos**

Army aerial photos can be used extensively with maps to select sites for command posts as well as sites for all types of tactical and support installations. This makes available up-to-the-minute details of terrain, vegetation, trafficability, and routes of communication, and permits detailed and deliberate comparison between several possible sites.

Another use of aerial photos is in the early preparation of an administrative order. Simultaneous study of map and photos depicting natural details will help plans for locating supply installations and supply points, routes of evacuation, medical and signal installations, transportation network, and maintenance and service facilities.

In planning for area damage control G4 finds a valuable use for aerial photos showing well-defined detail. Used in conjunction with maps of the area, the photos can assist in designating sector boundaries, locating the area defense control center, the alternate control center, key units, and communications routes. Used with the administrative overlay of the plan and related map, the locations of available rescue and labor squads, medical teams, communications teams, and primary and alternate roads can be clearly shown. In area defense planning, the Chemical Corps is interested in terrain photos to aid in determining drift patterns for possible employment of chemical or radiological weapons. Planning for construction of obstacles can also be done more effectively by using pertinent photos.

## **Camera's Eye Peers over the Enemy's Shoulder**

On 23 March 1953, the 7th Division, defending I Corps' right flank from positions southwest of Chorwon, was hit by the first of several strong attacks on Outpost Old Baldy (Hill 216). The Division counterattacked, and Old Baldy began changing hands rapidly. It was essential to maintain up-to-the-minute information on improvements in the enemy's

high-ground positions. Aerial cameras aimed from L-19 aircraft gave the 7th an almost continuous peek over the enemy's shoulder. Details of his trench system, bunkers, and all changes in positions were recorded to support and extend visual observation and to provide visual records for reading, interpretation, and dissemination.



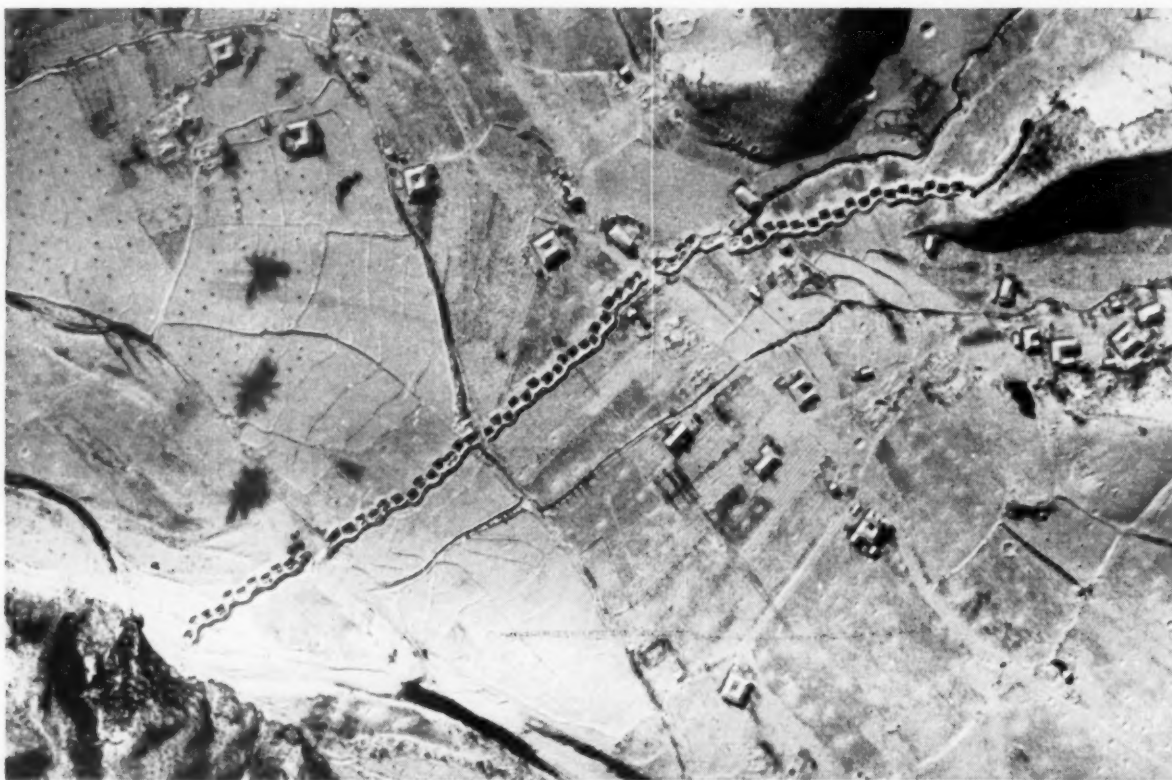


FEBRUARY 1957

## Tank Traps Pinpointed

At the end of 1951 the 24th Infantry Division in Korea was defending positions on Line WYOMING, southeast of Kumsong in central Korea. Probing attacks were being made along the line. Division G2 and G3 knew that enemy tank traps were in the valley, but were more than curious about details of construction and the enemy's plan for covering fire. A Division aerial photo mission was set up, and a photographer from its signal company,

flying in one of the Division's aircraft, made a series of large-scale (1:7,500 or larger is considered large-scale) photos of the area. These photos revealed that a line of pit-type tank traps had been constructed completely across the valley. With this series of photos, G2 photo interpreters determined the details of construction of the obstacles and pinpointed the locations of enemy antitank covering weapons.



Any transportation officer knows that "What is not used today is not available tomorrow." In his plans for using ports, beaches, aerial tramways, inland waterways, intersectional routes, air-landing areas, railroads and pipelines, liberal use of up-to-the-minute information from large-scale aerial photos can assist him in his planning. Studies of roadnets leading from beaches to railheads, of port facilities, and of rear-area waterways and rail lines can be simplified and speeded by using Army aerial photography.

Highways and traffic come in for a great deal of aerial photo interest. En-

gineers, Transportation Corps, Military Police and tactical training units need this recorded visual information. Road conditions, traffic routing and control, safety, and road-march discipline can be examined and evaluated by using these large-scale photos.

The PIO is not especially concerned with aerial photos like those we have described, but all these Army photos are available for his selection and use if security classification permits.

### **What's being done in Army aerial photography**

To increase the Army's capability

for making, processing and using its own aerial photos, new equipment is being produced, better training techniques are being used, and appropriate literature has been published.

The Signal Corps is producing the new KA-9 aerial camera which is tailor-made for use in Army aircraft. It uses 12- and 20-inch lenses and can be hand-held or operated from a mount. Signal Corps Experimental Laboratories is developing electrophotographic and Land fast-processing backs for the KA-9 to deliver prints quickly from aircraft. An image motion compensation feature will also be used to correct

for movement of image resulting from ground speed. Signal Corps is also producing a vertical camera mount (the LM-39) and an oblique mount (the LM-38). When the KA-9 and the two mounts are in the hands of using units, a period of total use of interim (K-20 and K-24) cameras and field expedient mounts will end, and we can go ahead with the development or adaptation of still better and more versatile equipment for more efficient and faster operation.

In the field, use of stabilization photo processing in the AN/TFQ-7 mobile darkroom and the use of waterproof paper have reduced developing and printing time considerably, and have also minimized the use of water in processing. Electrophotographic equipment projects in progress will increase speed and eliminate certain wa-

ter problems. These electrophotographic devices are also a step toward solving atomic radiation problems in the military photographic system.

The tactical use of aerial motion pictures is also under intensive study. The tactical use of television has been well publicized and work in this field continues.

The Signal Corps recently instrumented and successfully tested a camera-carrying pilotless radio-controlled drone that can be launched and recovered in forward areas, from which high-quality still and motion pictures have been made. The potential of this aerial photo capability is to obtain low-cost photos from low altitudes in all kinds of weather. The drone takes off from a JATO-type launcher, eliminating the need for conventional landing areas.

Testing and experimentation at the Army Electronic Proving Ground and at Signal Corps Experimental Laboratories include a project to develop a simple, reliable system of night aerial photography.

More use of infra-red film and color film is planned.

The Army has a training program for men who produce organic aerial photos and interpret them. Aerial photo training is given at the Signal Corps' Photographic School. The Army Aviation School is orienting student pilots in flying aerial-photo sorties. G2 photo interpreters are being trained in the use of aerial photos at the Army Intelligence Center.

The advanced courses at service schools today provide orientation in the purpose and availability of Army organic aerial photography.



## Command Post Site Selection

In April 1951, the IX Corps had its command post under canvas inside a broad bend of the Han River near Hongchon. Previous to the move to the site the Corps' Signal Officer had aerial photographs of the area made for the use of officers who were planning the arrangement of the site. A portion of the air-

strip may be seen in the lower right-hand corner. The General Staff area is in the small grove and the rest of the CP is near the river. Army aerial photos are a highly valuable aid in the selection and arrangement of sites for CPs and many other field installations.



# THE MONTH'S CEREBRATIONS

## LET'S GET THE MOST FROM OUR SHOOTERS

LIEUTENANT CLARENCE O. OGLE

**U**NDER the current TOE, each rifle company has nine snipers. In reality, most companies have none who are properly trained and qualified. An Expert Rifleman Badge and an M1-C rifle do not make a sniper. Furthermore, in many cases a soldier assigned as a sniper is neither the best shot in his squad (excluding the squad leader and assistant squad leader) nor proficient in the use and care of the sniper rifle.

Besides being an expert shot, a sniper must possess all the skills and traits of a cunning hunter, for he is a hunter after the most dangerous game: man. He must be able to use maps, aerial photos and compass, and know enemy uniforms, equipment, organization and tactics.

Men can get lifelong training, yet fail in the life-and-death struggle of the battlefield. Under competent and courageous leaders they may temporarily overcome their fears, but the sniper, who fights alone, is his own leader.

Special incentives are needed to attract and hold qualified snipers. I believe that, contingent upon federal, state and local laws (both in ZI and overseas), graduate snipers should be allowed to use sniper rifles and service ammunition for hunting during off-duty periods. Here is recreation with a definite training value that should appeal to potential snipers. Of course, the number of rounds issued each man should be limited. Also, snipers and sniper schools should receive publicity commensurate with their importance. Snipers should have a separate MOS or MOS prefix so that their value will not go unnoticed.

According to FM 21-75, "at least two snipers are trained for each sniper's rifle allotted to a unit," and "eighty hours is considered the minimum time needed to train a sniper. When more time is available, the allotted time is increased." Besides these eighty hours, at least four hours' instruction should be included in the use of the caliber .50 machine gun as a sniper weapon. The .50, telescope-mounted and fired single-shot, is very effective as a sniping weapon.

Following these ideas, each rifle

company would have eighteen selected soldiers, each needing a minimum of eighty-four hours of sniper training. The company cannot be expected to provide this training. For one thing, if we expect snipers to attain the highest proficiency, we must proceed on the premise that only a qualified professional sniper can train others, and not every company has an outstanding sniper instructor. Secondly, a sniper school established on divisional or regimental level would enjoy great prestige, get more support, and need a higher degree of supervision. Thirdly, a permanent sniper-training staff would be more economical in man-hours, achieve greater results, and in time become so thoroughly skilled that it could devise improvements in training, techniques, organization and equipment for higher levels of command.

In selecting men for sniper training, the unit commander would explain the sniper's importance and call for volunteers. Qualification as sharpshooter with the M1 would be a requisite. After graduation, volunteers from non-rifle units would be reassigned to rifle companies. If the number of volunteers in an infantry division or separate regiment were insufficient to furnish snipers for all its rifle companies, rifle company commanders could detail additional men from among their best shots.

The importance of volunteer snipers cannot be overemphasized. General S. L. A. Marshall in *Men Against Fire*

says that even for well-trained and campaign-seasoned troops, "75 per cent will not fire or will not persist in firing against the enemy and his works." How do you know if Private Ducrot, whom you picked as a sniper, will be in the effective 25 per cent?

As outstanding graduate snipers return to their units, they could indoctrinate their fellow soldiers in the role and employment of snipers. Sniper training could be integrated into other tactical training in small units. Outstanding snipers could train other snipers separately. Occasionally, they might act as Aggressor troops in training exercises, but care must be taken to distinguish between employing snipers in their primary role and as ordinary riflemen.

The initial impetus for Army-wide sniper training should come from DA. Since in the U. S. Army the science of sniping either was never fully developed or became lost, we might study the techniques of other armies.

Only after we have real, honest-to-goodness snipers throughout the infantry will we have more accurate and cheaper fire power than we have had in a long time. For a sniper to kill an enemy costs only about a dime. And we have heard of instances where one sniper delayed the advance of an entire company. Paper snipers are worthless. Let's get the most from our shooting soldiers.

**Lt. Clarence O. Ogle**, Infantry, enlisted in the Marine Corps in 1950 and served with the 5th Marines in Korea during 1951. He is a rifle platoon leader in the 2d BCT at Keflavik Airport in Iceland.

## GENERAL STAFF OR DIRECTORATE?

COLONEL WILLIAM C. HALL

**S**OME years ago, a lieutenant friend, arriving at a new post, learned that he was to be adjutant. He reported to the post commander and, after some casual conversation, asked the colonel about his policies.

"Policies? I don't have any. But if you do something wrong I'll tell you about it."

This unique relationship worked.

The adjutant had complete freedom of action, but occasionally the Old Man put on the brakes.

The point is that organization is not important in a small staff. In a large staff, however, procedures and policies must be known to all members of the team; for a staff is a team, and its actions are the results of teamwork.

In general terms, higher-level mili-



tary staffs fall into two categories: the general staff and the directorate. Under the general staff system, the section (like G1) establishes policies and coordinates the activities of the appropriate administrative or technical services. The director, on the other hand, usually has deputy authority to command the services and is more likely to engage in operations than would his general staff counterpart.

After serving on or directly under nine staffs at army or theater level, I have developed a preference for the general staff system.

What I have to say is not aimed at department level. The restrictions in the legal, fiscal, and comptroller fields and the interdepartmental, bureaucratic and political pressures create problems which even a three-dimensional six-color chart cannot depict. Some years ago I heard a Chief of Engineers say that his studies proved he actually had seventeen bosses. How much simpler and easier is the job of the theater or army engineer under any staff setup!

Considering G4 and technical services as an example, the difference between our two systems lies not in the titles nor the organization chart, but in the relations of staff members with the commander, and particularly with his chief of staff.

The directorate system has the apparent virtue of simplicity and directness in the chain of command. The commander, if he desires, may deal directly only with his chief of staff and his directors.

Under the directorate, if the signal officer desires approval of a staff action, he prepares the paper and submits it to the logistics chief. If the paper requires chief of staff approval, even

though the logistics chief personally or his section may lack technical competence for review of the proposal, he is briefed and may make the presentation to the chief of staff. I have seen instances when the signal officer was not even invited to the presentation of a communications problem.

Under the general staff system, the signal officer briefs G4 for his general information, and G4's main interest is the possible interests of other staff sections and the results of the action on other elements of the command. The signal officer then takes his case to the chief of staff without, in many cases, G4 representation. The signal officer in such cases normally would inform G4 of the chief of staff's action.

A military unit is a highly specialized organization and is getting more complicated despite all our efforts at streamlining. More and more, technical considerations are compelling factors in decisions. "For want of a shoe, the horse was lost" has become "for want

of a replacement HC-369, the AN/GRC-7 was deadlined."

Good old horse sense is still a valuable commodity, instinct can produce quick answers, and hunches can help. But if the solution involves dollars, gallons of gasoline, or percentage of combat readiness, accurate estimates and reports plus technical judgment are required.

I believe that the general staff system, with its direct access by the administrative and technical service chiefs to the chief of staff, encourages initiative, places responsibility in the most technically competent persons, and avoids empire-building (for specialized reviews and operations) in the G sections or directorates.

Let the experts expert!

**Colonel William C. Hall**, Corps of Engineers, has been a contributor to *ARMY* and its predecessors for many years. After graduating from the National War College in June 1956, he is now with the Alaska Command as J4.

## GIVE THE NONCOM HIS HEAD

### SERGEANT PERRY W. BROWN

**T**HE reason we don't get and keep career noncommissioned officers is our failure to accord them full responsibility in carrying out their assignments. No matter what privileges are given him (and he expects and should have them), the noncommissioned officer cannot develop his full leadership potential, unless he is given the responsibility of doing a job on his own without having his hands tied. We must stop telling him how the job is to be done and what men he must use.

Give the noncommissioned officer an assignment, and with it the authority he needs to get it done. The choice of personnel and methods to be used should be left to him, so long as he remains within reasonable bounds. Encourage him if he is competent and aggressive; try to help him if he is hesitant; but most important, bust him if he is incompetent and promote someone who has proven capable.

We can attract and hold high-caliber leaders if we present Army service as a challenge, stressing their importance

in the Army's mission. That mission—success in battle—has never changed, regardless of an individual's job and circumstance. Advancement should be based upon personal ability and initiative rather than time in grade and length of service. Ours is a competitive world, and it just isn't good business to promote a man just because he has been around a long time. Neither is it good business to lose a potential leader because policies cause him to despair of advancement within a reasonable time or of financial improvement in a fast-moving world.

One source of potential noncommissioned officers are the soldiers who have had some college training. The ROTC cadet who graduates is assured of a commission. But the nongraduate who enlists or is inducted finds that, after basic training, his chances for OCS or for promotion are limited—not because he lacks leadership ability or those other traits so necessary in an officer, but because of considerations beyond his control. In the enlisted promotion

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scheme he has a dim chance of advancing to the top two grades of NCO. Because of his educational background the Army assumes he won't stay in. His ability may be known and his initiative demonstrated, but he won't get ahead because he has less time in grade than certain other men in his unit. While these men form only a small percentage of the Army's total, that does not excuse us for not providing them the chance to demonstrate their leadership abilities. Nowadays we must do our utmost to retain every superior soldier.

If this matter is examined, it will be found that such men leave the service not because of pay standards (though that has some bearing), or an aversion

to military service, but because we have not sold them on the Army career. We do not offer them a suitable challenge for their abilities. They know they cannot expect advancement based upon their abilities and initiative, for all around them they see advancement based upon time in grade and length of service.

**Sgt. Perry W. Brown**, a career soldier, attended Arkansas AM&N College and received his AB degree from Howard University in 1950. He has been a combat instructor in the 101st Airborne Division, a squad leader of a division defense platoon, and attended the 3d Armored Division Academy, where he is now an instructor.

## YOU DON'T GET SOMETHING FOR NOTHING

MAJOR DAVID R. McNAUGHT

THE military press has clearly and logically pointed out the fallacies of various panaceas for "more bang for less bucks." Our own Army seems to have turned to the glib phrase in its articles on the reorganization of our airborne division and the reactivation of the 101st. Recent articles in the service journals, describing the new airborne division, create the impression that this reorganization has vastly improved every facet of combat potential of the division while drastically reducing manpower requirements. This leads to the conclusion that by reorganizing and re-equipping all infantry and armored divisions along the same lines, we will effect material savings in manpower while increasing combat power. Before we become victims of this something-for-nothing salesmanship, let's examine the basic policy under which the airborne division was reorganized. It is laid down in the brief, clear, unclassified letter, "Air Transportability," signed by General Ridgway, then Chief of Staff, on 28 June 1955, and also in AR 705-5.

General Ridgway's letter reviews our progress toward an air-mobile army under the then current program on air transportability for combat units. This policy, you will remember, had as its goal the complete tactical and strategic air mobility of all combat units so long as it did not reduce their ability to conduct sustained combat. It recognizes that the ability to airlift units is determined simply enough by what

equipment, supplies and personnel we want to move as against what airlift is available to move them. Unfortunately, with present and contemplated equipment, it has proved impossible to improve the air transportability of the division without impairing its ability to conduct sustained combat; and it appears that the trend will be toward more and heavier equipment rather than less and lighter gear. This policy places emphasis on the secondary mission of the airborne division: to fight as an infantry division, rather than its primary mission. The letter concludes, logically, that the airlift that will be available in the near future, in terms of both quality and quantity, will not permit airlifting a division with all the staying power, ground mobility and heavy equipment necessary for sustained combat in an atomic era.

Consequently, if we are to effectively utilize the available airlift to gain mobility, we must have specialized airborne divisions and companion long-range reconnaissance units designed primarily for the airborne role. These airborne units must sacrifice staying power to the degree necessary to gain full tactical and strategic air mobility with the available airlift. In other words, we haven't gotten something for nothing; the new airborne division has paid a price for its improved air mobility—a price our infantry and armored divisions cannot afford because they must remain able to conduct sustained combat on land under any con-

dition. I do not mean to imply that all of the equipment and many of the tactical, operational and organizational concepts being tested by the 101st may not later be adopted by infantry and armored divisions, for they may. However, let's not kid ourselves and the public into believing that the 101st is the answer to all our problems. The new airborne division, with its limited ground mobility, artillery, engineers and armor, or a division similar to it, cannot fill the role of the infantry division in sustained combat. The infantry division, designed for sustained combat under any condition, must have more staying power and greater ground mobility than the new airborne division, which has sacrificed these capabilities to some extent so as to be able to fully utilize the available airlift. For example, five combat groups may be sufficient for a division designed to conduct frequent airborne assault under conditions favoring airborne operations, but they may not be nearly enough for sustained land combat under all conditions.

The overselling of the new airborne division as a cure-all for our Atomic Age problems could have disastrous results on future decisions affecting army strength. The yet unproved assumption that all our divisions can be reorganized so as to drastically increase their combat potential while cutting their manpower, leads logically to major cuts in army strength. It is still the U. S. Army's primary mission to be prepared for sustained land combat. We cannot do it with armies composed solely of lightweight divisions.

Every member of our Army has a moral obligation to point out what we require to prevent or defeat enemy aggression. We need units that can fully exploit the speed and flexibility of air transport to gain victory on land. We must have units with the staying power and ground mobility necessary to slug it out with vast land hordes. For the job we must be prepared to do we need two or more different types of units.

**Major David R. McNaught**, Infantry, fought in World War II as a platoon leader, and was a company commander and regimental S2 and S3 with the 2d Division in Korea. He is a master parachutist, and is chairman of the Doctrines Committee, Air Mobility Group, Airborne-Army Aviation Department of The Infantry School.

## Fairchild Aircraft Develops Seven-Pound Armalite AR-10 Automatic Rifle

Colonel Melvin M. Johnson, Jr.

SINCE 1945 the U. S. Army has sought a seven pound, caliber .30 (shortened), full and semiautomatic twenty-shot shoulder rifle. The same basic rifle with bipod and heavier barrel had been intended to replace the time-worn 21-pound BAR M1918A2, the squad auto-rifle; also the U. S. carbine M1-M2, the M3 sub-machine gun and the M1911 .45 pistol.

During the past ten years the only contenders of note have been the following 8.50-9.70-pound rifles:

T25/47—Army Ordnance, Springfield Armory

T44—a modified M1-T20E2, Springfield Armory

EM2—British Ordnance, Enfield Arsenal

FN-T48—Fabrique Nationale, Belgium; similar in action to the 1938-40 Russian Tokarev 7.62mm semiautomatic rifle, obsoleted by the USSR in 1944.

**First U. S. industry-produced rifle  
in many years combines steel,  
aluminum and foam rubber**



Quite exhaustive tests during the past decade have eliminated the T45 and the EM2. The FN Belgian rifle was tentatively adopted by a few foreign countries in 1955-56.

As a result in part of U. S. military policy, there had been no military rifles offered in 1945-56 by U. S. industry. However, early in 1956 the Fairchild Engine and Airplane Corporation presented their Armalite "AR-10" rifle.

Recognizing the need for reduced weight and reduced recoil for combat efficiency, Fairchild has presented a seven-pound rifle to compete with the 8.50-pound Ordnance T44 and 9.00-pound Belgian FN. Without its six-ounce recoil compensator (40 percent kick reduction) and flash reducer, the 40-inch AR-10 rifle weighs some 6.65 pounds. Its twenty-shot aluminum corrugated detachable box magazine weighs four ounces, slightly over one pound loaded, some 10.5 pounds for 160 loaded rounds. Thus the need for strip-clip loading to avoid weight is diminished.

Major weight reduction, contrary to some press stories, is not the result of aluminum materials, though these, a foam plastic stock and forearm, contribute. The AR-10 has an eight-lug front-locked 22.5-degree rotary bolt, which as in the 1940 Johnson weapons, locks on the barrel abutments. This system in the AR-10 gives maximum locking strength with minimum space and weight, permitting use of a stamped aluminum thin-wall receiver. Hence major weight saving, as well as simplified mass production design, can be traced to the breech locking system, more especially compared to others such as the rear-locked T48-FN, T25-T47, and receiver-locked T44, T20E2, M1.

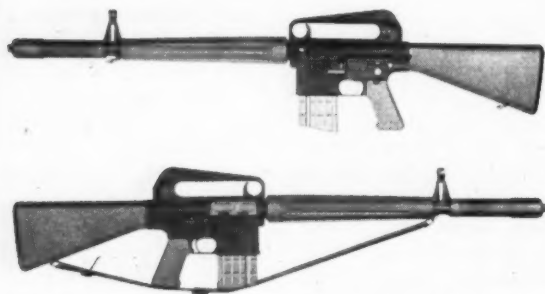
The AR-10 supports its 1.50-pound aluminum-shrouded 20-inch steel barrel with a ventilated, foam plastic forearm. Its barrel is also available in steel without aluminum at 1.50 pounds, some 0.20 pounds lighter than the T44-T48 1.70-pound barrels.

The Fairchild rifle, as might be expected of an aircraft industry's design, emphasizes strictly the functional approach, light weight, mechanical and manufacturing simplicity. Its breech is so designed that when the rifle is loaded and locked the action is entirely closed against sand, dust, mud, rain, snow. As the first shot is fired the ejection port cover opens and may be closed again when firing is suspended.

### Gas-pipe operation system

The Fairchild rifle is piped-gas operated, eliminating the more conventional and complex operating rod system seen in the T47, M1-T20E2-T44, and FN-T48 series. Gas is taken from a port near the muzzle and transmitted through a pipe into a hole bored in the left side of the bolt carrier.

A member of the new 101st Airborne Division tries out the Fairchild AR-10 rifle which is presently undergoing extended Army engineering tests



Side views of the Fairchild Armalite



Disassembly of the Fairchild Armalite

When the rifle is fired the gas passes into the carrier well, causing rearward motion in the carrier which in turn carries the bolt to the unlocked position. Momentum in this one-pound assembly produces ejection, compression of the straight-in-line mainspring, and cocking. In effect the bolt carrier also serves as a moving hollow piston. While there have been several experimental foreign rifles (French and Swedish) using the gas-pipe system, the Fairchild is the first to combine a front-locked bolt. The cyclic rate of fire is 750 shots per minute, which means that on full automatic the rifle fires its 20-shot magazine in about 1.65 seconds, or some 12 shots per second rate.

The accompanying illustrations show the straight-in-line reduced-jump stock and high line of sight seen previously in the German MG 34, MG 42, Fallschirmjaeger Gewehr 42-44, U.S. T25, Johnson M1941 LMG. Such conformation is preferable both for fast semiautomatic fire and full automatic

**Colonel Melvin M. Johnson, Jr.**, USAR-inactive, is well known as the inventor of the Johnson semi-automatic rifle and Johnson light machine gun, and also as the author of many books and articles on rifles and machine guns. In recent years he has been a consultant on armament to ORO and to private industry, including the Fairchild Aircraft & Engine Corp. He wrote this analysis of the new Fairchild AR-10 rifle at our request.

fire. It is embodied currently in the U. S. T161 general-purpose machine gun, and was a feature of the British experimental EM2 rifle.

The high rear sight is mounted and protected in a triple-purpose carrying handle, cocking arm guard, and sight base. Windage zero is set and locked permanently. Elevation zero is set permanently in the hooded high front sight. Combat elevation is adjustable. The third function of the carrying handle is to guard the vertical cocking handle which as in the M1928 Navy Thompson sub-machine gun is equally convenient for left- and right-handed operators.

As in the BAR and FN-T48, the cocking handle does not reciprocate in firing.

Lacking any operating rod, the Fairchild AR-10 rifle is exceptionally fast and simple in field disassembly. A locking pin is moved laterally and the butt section swings fully down, disclosing the hammer mechanism and permitting instant withdrawal of the cam stud, bolt head, and carrier assembly. The bolt head contains the extractor and spring-loaded ejector. The inside of the aluminum frame and the bolt-carrier-piston assembly are thus readily available for cleaning off dirt and fouling.

#### Author reports on personal firing tests

The writer has observed some hundreds of rounds fired out of two AR-10 rifles, and personally fired two hundred rounds on 7 December 1956 out of one rifle.

Using ammunition cal. 7.62mm NATO, U. S. T65E3, and .308 equivalents, the AR-10 gave me extreme spreads of four inches at 100 yards.

Forty rounds were fired with forearm support on a ten-inch bullseye at 100 yards. The rate of fire was ten shots in seven seconds, or over 82 shots per minute rate. The extreme spread for all forty shots was inside ten inches.

The rifle was fired in one hand full automatic and semi-automatic, also held loose, held tight, held in all positions, and at all angles including vertical *versus* hand-thrown tin cans which were hit despite the high sights.

As of 1941 the family concept of weapons, semiautomatic rifle and auto-rifle, was seen in the Johnson rifle and light machine gun, 9.50 and 12.50 pounds. The AR-10 weighs 7.00 pounds and the auto-rifle, Fairchild version, with heavy barrel and bipod weighs 10.50 pounds.

The basic light weight of the Fairchild AR-10 rifle lends itself to maximum air-cooling in an automatic squad weapon because maximum weight and a barrel-cooling forearm can be readily applied to the hot barrel section of the piece without sacrifice of squad-mobile weight loads. Thus, for example, an AR-10 auto-rifle with four-pound barrel and two-pound bipod would weigh only 11.50 pounds, if that is what the infantry needs for future far-flung fighting.

The Fairchild AR-10 light automatic rifle appears to be the only U. S. industry cal. 7.62mm NATO contender in the field today.

As a modern rifle adapted for a conventional type of small arms ammunition, such as the 7.62 non-NATO, or similar high-velocity cartridge of rimless type, the Fairchild Armalite AR-10 discloses many interesting possibilities for hyper-mobile U. S. Army and other NATO needs. As of January, 1957, AR-10 rifles are undergoing extended Army engineering tests.



## How Army Ordnance Increases the Accuracy of Artillery Fire

Maj. Gen. Leslie E. Simon and Dr. R. H. Kent

TRADITIONALLY the cannoneer boasts of the accuracy of his piece, and nothing builds up the spirit of an artillery unit like the knowledge that its guns deliver fire right on. But there are factors, other than the gunner's knowledge of his trade and his desire to excel, that contribute to a gun's accuracy. In this article we shall explain what is meant by *accuracy* as contrasted with *precision*, and why the limits imposed by the requirement of lethality and by limitations on weight of gun and carriage make it difficult to obtain desired accuracy. Artillerymen should know how exterior and interior ballistics affect dispersion, and how the requirements we demand affect ballistics. They should know too about how the grand lot of 105mm ammunition is made, and how it enables a gunner to predict fire accurately.

The mission of Ordnance is to supply accurate tools that will do the job set forth in military characteristics by the fighting men who use them. To meet the lethality require-

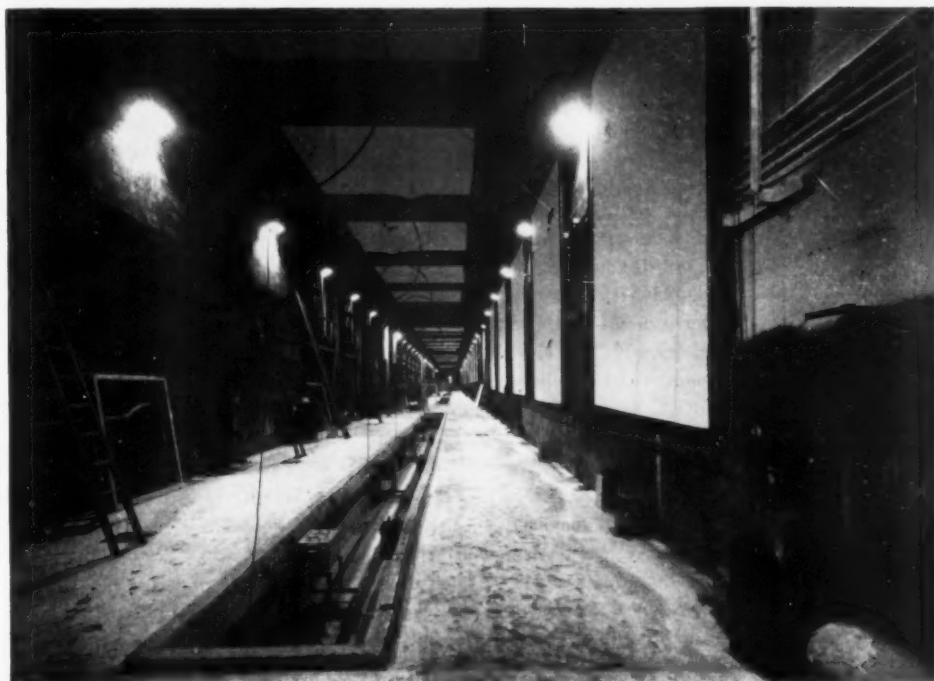
ment demanded by artillerymen, Ordnance provides shell with thin walls which are inherently less accurate than shells with thick walls. Imposed weight limitations restrict velocity, so Ordnance must design a very long shell that cuts down air resistance. If it didn't, weight of gun and carriage would have to be increased beyond desirable limits in order to obtain the desired range.

### Accuracy versus precision

Precision means the reciprocal of the probable error in range, or the probable error in deflection. Accuracy implies precision plus absence of bias. Not only does accurate fire have small dispersion, but the center of impact is close to the target. *Figure 1* shows fairly well what the statisticians mean when they contrast precision with accuracy, though frequently they use the two terms synonymously. We see that the precision of these rounds is fairly high; probable error in range is about a quarter per cent of range. Yet the center of impact is not very close to the target, so the fire could hardly be called accurate, though it is fairly precise.

**Precision plus low drag plus lethality and grand lots of ammunition selected through strict methods of quality control**

One of the two exterior ballistics ranges at Army Ordnance's Ballistic Research Laboratories. Some 800 feet long and equipped to photograph a projectile's motion, this range is used for shell of 2 to 8 inches in caliber. The other range, 300 feet long, is for smaller calibers.



Let's examine the reasons why center of impact is usually not very close to the target. Suppose you attack a target with a new lot of ammunition. That ammo might have a different mean muzzle velocity from the lot last used; you can't know that difference, and so cannot include it as a velocity correction. Also, that lot of shell might have a different surface finish, which will cause a change in air resistance. And even if the ammo is of the same lot, the wind might have changed since your late metro message (Figure 2).

#### Importance of minimizing drag

An artillery shell's range depends on its muzzle velocity ( $V_0$ ) and the ballistic coefficient (Figure 3). The ballistic coefficient is defined by  $C = \frac{m}{id^2}$ , where

$m$  is the mass (weight of the shell in pounds),  
 $d$  is the diameter in inches, and



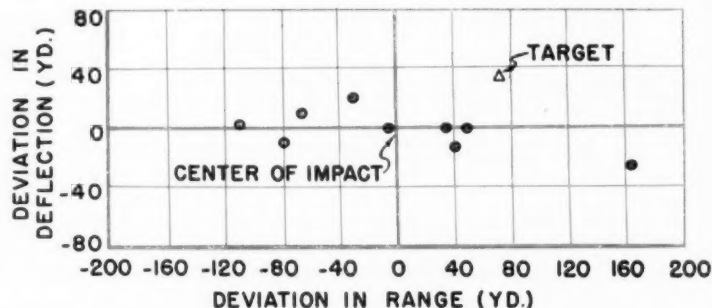
GENERAL SIMON

**Major General Leslie E. Simon**, retired, graduated from West Point in 1924 as a Coast Artilleryman and transferred to Ordnance in 1930. He has had long experience in storage, scientific inspection and grading of ammunition, and his work led to the creation of the system for controlling the war reserve of ammunition used by the three services. Under his directorship (1941-49), the Ballistic Research Laboratories became a leading scientific institution. General Simon became Chief of R&D for all Army Ordnance in 1949, and in 1951 was appointed Assistant Chief of Ordnance, in addition to his former duties. He is a fellow of several scientific societies, and is the author of *An Engineer's Manual of Statistical Methods* and *German Research in World War II*.



MR. KENT

**R. H. Kent** earned his A.B. in 1910, his A.M. in 1916, and was given an Honorary Sc.D. in 1953 at Harvard. He instructed at Harvard and the University of Pennsylvania from 1910 to 1917, when he went overseas as a first lieutenant in charge of ballistic work for the AEF's Chief Ordnance Officer. He began work as a civilian in the Office of the Chief of Ordnance in 1919, and transferred in 1922 to Aberdeen Proving Ground, where he has remained since. He has long been associated with BRL, and was its Associate Technical Director until his retirement last year. Dr. Kent was elected to the National Academy of Sciences in 1951. He has written numerous scientific papers and contributed some of the chapters of several standard ballistic textbooks.



**Figure 1. Deviation in range and deflection from center of impact**

probable error in range — 50 yards  
 probable error in deflection — 10 yards

$i$  is the ratio of the drag coefficient,

$K_D$ , to that of a standard shape (you multiply  $K_D$  by the density of the air, by  $d^2$  and the square of the velocity to get the drag or air resistance of the shell).

If the caliber,  $d$ , is specified (for example, 100mm, or 3.937 inches), and if weight is approximately determined by caliber and lethality, then ballistic coefficient for a shell of a given caliber and lethality is inversely proportional to drag coefficient,  $K_D$ . In other words, the more streamlined the shell, the smaller is the drag coefficient.

To get more range you increase either ballistic coefficient or muzzle velocity, or both. You can't get greater range by increasing muzzle velocity and ignoring ballistic coefficient because we have found that weight of gun and carriage is approximately proportional to the projectile's muzzle energy. Hence, other things being equal, doubling muzzle velocity quadruples weight of gun and carriage. But greater range through increasing ballistic coefficient by reducing drag does not introduce unmanageable weights in gun and carriage.

Lengthening ogive and boattail to obtain greater range increases the difficulty of stabilizing the projectile. When a shell leaves the muzzle it usually wobbles a bit and as a rule, for a shell that is practical, breadth of wobble diminishes until the shell goes to sleep on its trajectory. Wobble begets extra resistance which reduces velocity. This is called yaw drag, and one of the main jobs of Army Ordnance's Ballistic Research Laboratories (BRL) is to study shell designs to determine which type will soonest lay on their trajectories and thus minimize the drop in velocity caused by wobble. This drop, induced by initial yaw, is really equivalent to a change in muzzle velocity. Variations produce dispersion in velocity and hence dispersion in range. As a rule, dispersion in velocity caused by initial wobble is not very great, say a few foot-seconds, but it looms important when you strive to minimize probable error in range.

#### Importance of lethality

In 1951 CONARC (then Army Field Forces) called on BRL to recommend a family of field artillery. For the light howitzer the three important requirements were projectile

effect against personnel, accuracy, and range. Projectile effect, of course, means lethality, so it appeared that primary consideration should be given to it.

To get great lethality, you need above all a large bursting charge, because the greater the bursting charge the greater the velocity of the fragments, and the smaller the fragments, the more produced. The disabling effect of a fragment is very strongly related to its velocity, and much less to its weight (*Figure 4*). Because the shell's walls must not be too thin to withstand setback in the gun, it appears that within practical design limits, the greater the bursting charge, the greater the shell's lethality.

### Causes of dispersion

Both exterior and interior ballistics affect dispersion, and exterior ballistics are affected by variations in initial yaw and in roughness of shell.

We have mentioned that one exterior-ballistic cause of dispersion is in the initial wobble. One effect is to increase the shell's drag so long as wobble persists, producing an apparent or effective muzzle velocity reduction. Variation in velocity gives an effective muzzle velocity dispersion. Another is that the forces acting upon the shell, mainly lift force, change the trajectory's direction from what it had been had there been no wobble. This change in direction is called the jump due to bore clearance. It is an effective jump which, for certain purposes, must be included with the jump due to other causes.

We have seen too how the velocity-reducing effect of wobble depends on the initial maximum yaw and the rate at which this initial yaw is damped. Damping of the yaw is a complicated phenomenon which depends upon various aerodynamic moments and forces, including lift force, overturning moment, yawing moment, Magnus moment, and the mass of the shell. Unfortunately, the science of aerodynamics has not yet reached the stage where these forces can be predicted accurately, so we must resort to time-consuming experiments to determine these aerodynamic forces by shooting shell through a well-instrumented range and carefully recording the motion in photographs, then inferring the forces and moments from the record.

The transsonic exterior ballistics range shown in the picture is one of two at BLR. Some 800 feet long, and equipped to photograph a projectile's motion, this range is used for fairly large shell (2 to 8 inches in caliber). The other range, 300 feet long, is for smaller calibers.

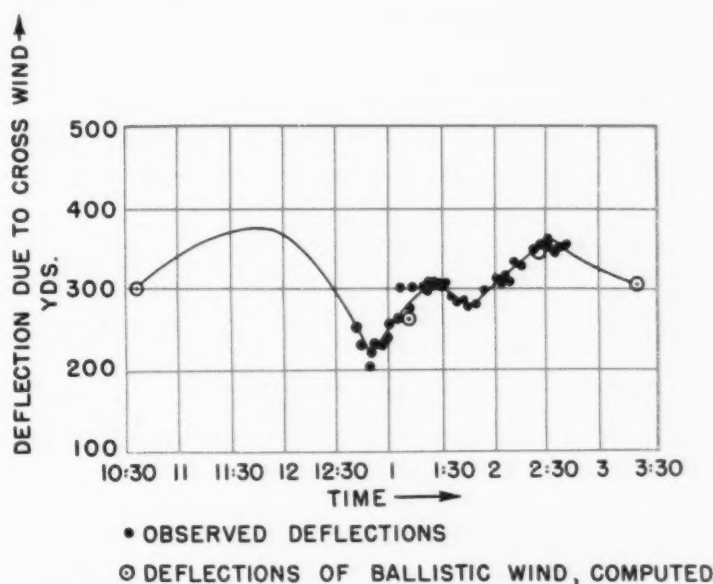
The degree of lethality depends upon the size of the bursting charge, so for a given caliber to provide a greater bursting charge, the shell's wall must be thinner, and this is likely to produce the phenomenon of dynamic unbalance. We

all know that to balance high-speed rotating machinery statically and dynamically, the center of gravity must be placed on the axis of rotation. Obviously, a shell with no cavity will, in general, be dynamically balanced. But if the cavity is large and walls are thin, variations in wall thickness of a spinning shell introduce not only static, but dynamic unbalance.

Experiments prove that in dynamically unbalanced shell initial yaw is considerably greater than in dynamically balanced shell. Yaw caused by unbalance is added vectorially to the yaw due to bore clearance. It follows then that jump due to bore clearance and unbalance should be greater with thin-walled shell than with thick-walled. Thus, the requirement for lethality increases the initial yaw, and produces not only a greater variation in jump but also a greater variation in drop caused by yaw than would be the case with thick-walled shell. *Figure 5* explains the dispersion in deflection versus per cent bursting charge for a solid shot, and for the two HE shell we call M1 and T2. The amounts of dynamic unbalance for these shell can be calculated from this curve, and also the velocity drops due to initial yaw. Here are the results:

	Solid shot	Shell M1	Shell T2
Average velocity drop due to initial yaw (ft/sec)	0.2	1.1	5.0
Corresponding probable error in velocity (ft/sec)	0.1	1.0	4.4
Corresponding range probable errors (yards)	0.1	7.0	18.0

Early in World War II it was found that roughness of the



**Figure 2. Deflection due to cross wind versus time**  
effect of wind on deflection; firing of 155mm shell, Mk III, to determine the effect of tolerances.  
Gun—155mm G.P.F. No. 1156, Puteaux

shell's surface affected range considerably. This table gives the ranges of 105mm shell, M1, with varying types of surface finish:

RANGE OF 105MM SHELL, M1, WITH VARIOUS TYPES OF SURFACE FINISH

Finish	(Zone V) Corrected Range (yards)
Unpolished, unpainted	6,902
Unpolished, painted	7,015
Polished, painted	7,165
Polished, unpainted	7,206

From these figures we see that surface finish has a considerable effect on range. The type of air flow depends on surface finish too, for with a smooth surface, flow is predominantly laminar, with almost complete absence of turbulence. Skin-friction effects in laminar flow are much less than those in turbulent flow.

Flying insects can affect the laminar flow. Some years ago Sydney Goldstein, the British aerodynamicist and applied mathematician, designed a laminar-flow airplane in which all surfaces were kept highly polished. To prevent the finish from being marred by collision with insects, all surfaces were protected until an altitude of 4,000 feet was reached, when the

plane could be flown with all wraps removed. In view of this, it would not be wise to have our shell highly polished, because laminar flow might be upset by squashed insects, thus producing great variations in drag and ballistic coefficient. So it is best to have the shell of average, well-controlled roughness. While they have greater drag than smooth ones, uniform roughness can be produced from round to round, and the finish is not easily marred by handling.

The interior ballistics cause of dispersion in range is dispersion in muzzle velocity. However, this dispersion must be distinguished from the effective dispersion in muzzle velocity caused by variation in initial yaw. Three factors must be considered in solving this problem: design of gun, design of ignition system, and blending of propellant.

In general, it is easier to get consistent muzzle velocity in a gun especially designed for it. The main objective in gun design is to produce a small muzzle velocity dispersion by having the charge use up most of its chemical energy in imparting kinetic energy to the projectile. Theoretically, if your tube is long enough to reduce the powder-gas temperature to absolute zero, no chemical energy would remain. Then the kinetic energy of the projectile would be absolutely proportional to the powder-charge weight, since no variation in burning from round to round would have any effect: all the

propellant's chemical energy would be converted into kinetic energy for the projectile. We see that weapons with high thermodynamic efficiency—that is, the ratio of the projectile's kinetic energy to the charge's chemical energy—are correlated with small relative muzzle velocity dispersions (Figure 6). However, guns with high thermodynamic efficiency require a higher maximum pressure to impart to a given projectile as high a muzzle velocity as guns with smaller thermodynamic efficiency.

Consider another aspect. Your gun is already designed and you are trying to get from it the least possible muzzle velocity dispersion. This involves ignition-system design which, in fixed rounds, means the design of the primer. In the case of separate loading, it means the design of the primer plus the design of the base or other charge. Some examples of the influence of primer design on consistency of velocity are shown in the table on page 63.

Recently, in an attempt to develop a charge for an xmm gun, it proved difficult to reach the desired muzzle velocity within pressure limits and velocity dispersion was too great for acceptance. With a new ignition system, the desired muzzle velocity was attained and the probable error in muzzle velocity reduced to less than 2 f/s.

To make the production of suitable primers easier, the Interior Ballistics Lab-

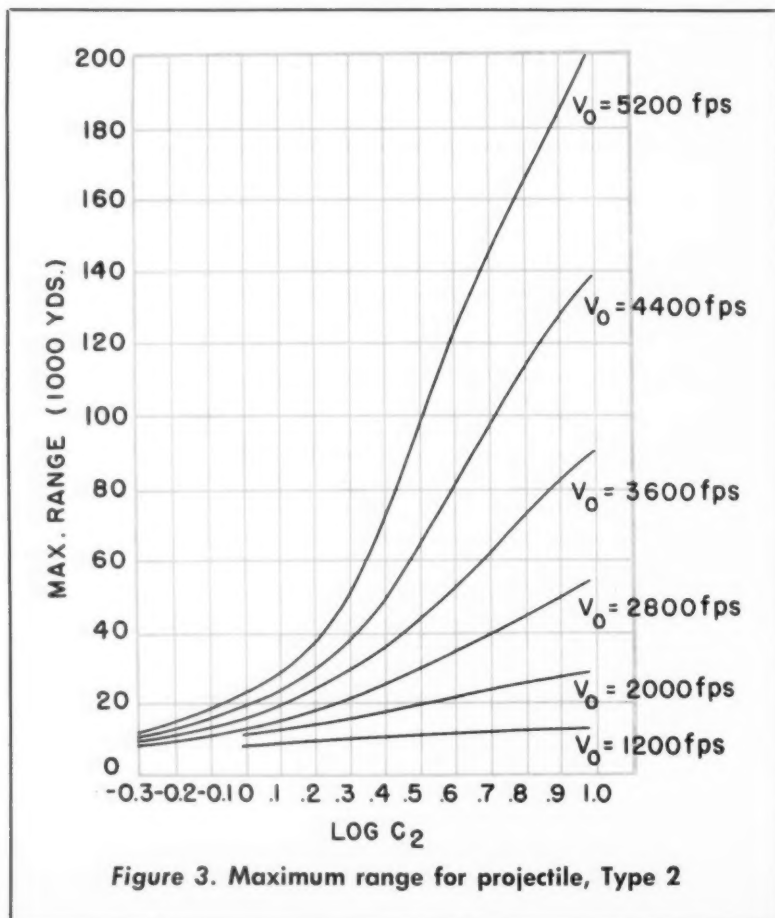


Figure 3. Maximum range for projectile, Type 2



oratory is developing a substitute for black powder. So far as we know, this is the first practical substitute in history for black powder. The black powder is ignited by the percussion element, like a match sets kindling wood afire. The black powder ignites the main charge of smokeless powder, like kindling transfers flame to logs.

#### MUZZLE VELOCITY DISPERSION FOR VARIOUS IGNITION SYSTEMS

Gun	Primer	Weight of charge (oz.)	Muzzle Velocity (fps)	Probable Error in Velocity (fps)	Range Effects (yds)
76mm	T48	90.0	3,950	19.4	104
	T88	90.5		4.7	27
90mm	M58	141.0	2,975	11.5	88
	T88E1	141.0	2,975	7.6	60
xmm	Special	46.0 lb.	2,914	1.3*	21

\*(small sample)

This substitute is now made in laboratory-sized lots by a process less tedious and dangerous than that formerly used. If the process can be expanded to full-plant scale, and if the materials withstand required storage tests, we hope the black powder substitute will facilitate the development of primers that give much greater accuracy in muzzle velocity over the old black-powder types.

No matter how carefully a propellant lot is manufactured, there are unavoidable variations in web thickness, and hence in burning rate, because of uncontrollable variation in the dies through which the material is extruded. To obtain consistent velocity the propellant must be carefully blended, and various methods are used.

Back in 1934 Picatinny Arsenal experimented to determine how much mixing was necessary to get a reliable blend. Various portions of a lot were colored to determine how often the blending process must be repeated to produce a reasonably uniform mixture of the different colored grains. These experiments and the information they provided convince us that our propellant lots are correctly blended. However, inconsistent blending will result in variations in velocity.

#### The grand lot of 105mm ammo

Before the Normandy invasion we tried sorting out the 105mm ammunition to be used in assault, for both muzzle velocity and roughness. The object was to group the 105mm ammo into families of lots that would have fairly constant ballistic coefficients within the lot and fairly constant muzzle velocity. Although a great deal of time was spent in field firing tests, and the selection was

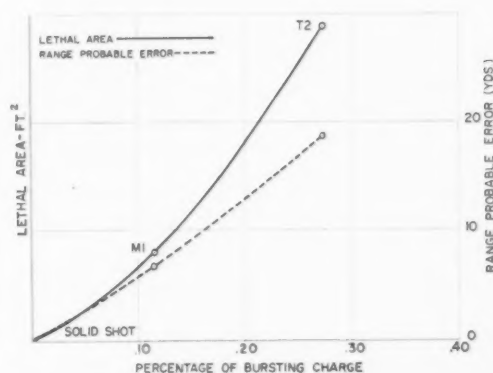


Figure 4. Lethal area and range probable error versus percentage bursting charge

successful, the confusion after the assault was such that the lots recommended were not used to full advantage. One of the big disadvantages of having small lots, say of 3,000 rounds, is that when you stop using one lot and go to another, muzzle velocity changes, and, in general, roughness of shell changes, so a change in ballistic coefficient results. You must readjust your fire if you change to another lot.

Ever since World War II we have been studying the problem of establishing a very large lot (called a grand lot), and it was used in Korea. The first grand lot totaled 149,223 rounds with projectile sublots, primer lots, and lots of other

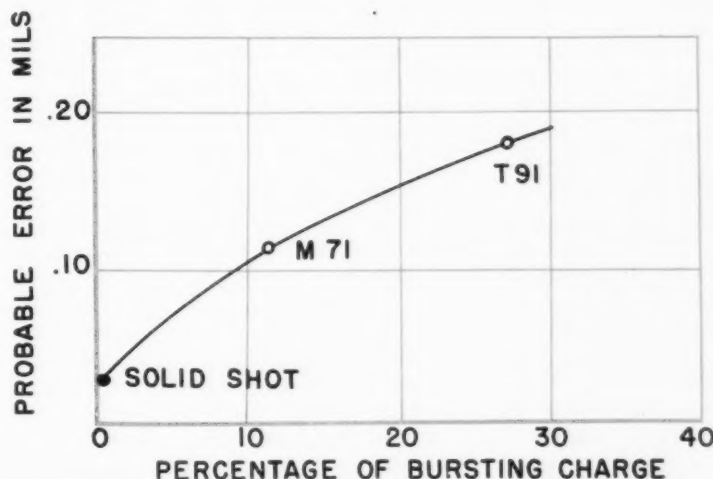
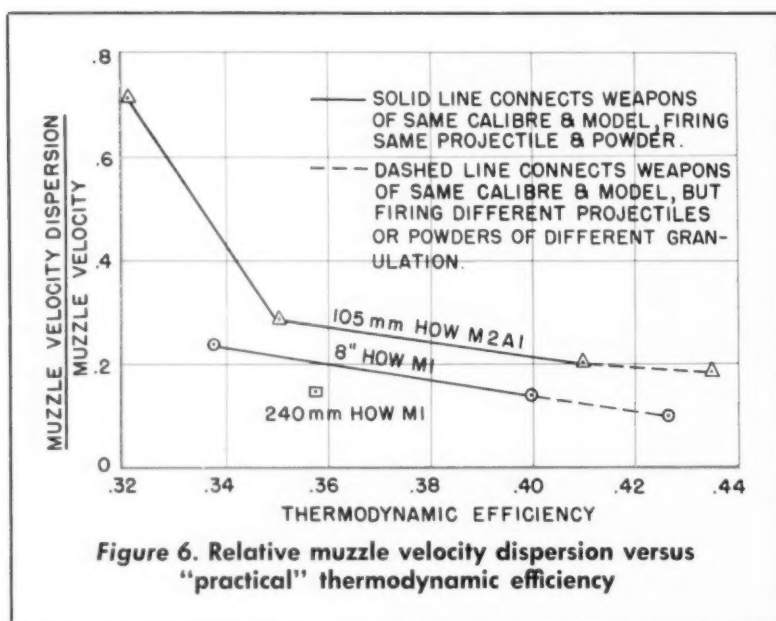


Figure 5. Probable error of 90mm gun at 1000 yards versus percentage of bursting charge



components so selected, and with powder so blended within the grand lot as to give uniform ballistic characteristics. Shell were of uniformly average roughness. Some of the results of firings of this grand lot are in the following table:

#### 105MM HOWITZER, ZONE VII

Muzzle Velocity: 1,550 f/s

Elevation: 405 mils

Range: 9,500 yds.

	A	B	A/B
Sublot	Observed Probable Error in Range (yds.)	Estimated Probable Error in Velocity due to Observed Probable Error in Velocity (yds.)	
1	13.5	14.28	.949
2	15.10	16.47	.917
3	18.57	14.47	1.283
4	16.73	10.68	1.566
5	18.94	10.50	1.804
6	14.33	18.06	.793
7	13.81	15.67	.881
Grand Lot	15.86	14.56	1.089

You see the observed probable error in range, and in the next column the estimated probable error in range due to observed probable error in velocity. Both range and velocity were measured on each round. The last column gives the ratio of observed probable error in range to estimated probable error in range due to observed probable error in velocity.

If the ranges were measured accurately (and as a rule they were) and if the velocities were also measured accurately, then the figures in the second column should be greater than those in the third. The ratio should be greater than unity. However, because of errors in measurement of velocity, the ratios are not always greater than one.

Note, however, that the mean of the ratios is greater than unity, but only slightly. This indicates that the exterior

ballistic cause of dispersion, variation in roughness of shell, produces effects considerably smaller than interior ballistic causes of dispersion, including that due to yaw. This means that the variation of shell roughness in this grand lot has been kept within acceptable bounds.

In making the grand lot, strict attention was given to control of quality of propellant, of surface finish, and of weight of shell. In actual operation, quality control involves three steps: sampling, posting the charts, and trouble hunting.

It is needless to point out to experienced artillerymen the benefits that availability of large lots will give them. Since it will rarely be necessary to change lots, the gun calibrated for the lot that has been used can retain its calibration, except for wear, for a long time.

One interior ballistic cause of inaccuracy has thus far not been mentioned: the influence of condition of bore upon

velocity. If you oil or grease a gun and then re-fire it, velocity of the first round will differ from that of succeeding rounds. To get a reproducible performance from a gun that has been oiled, fire several rounds before firing for registration or effect. If the gun is free of oil or grease, so far as interior and exterior ballistic effects are concerned, the grand lot will in large measure solve the problem of predicted fire. By that we mean that, with such a grand lot, if the artilleryman knows the ballistic wind he should be able to place the center of impact on the target.

We have said that deflection is a good method of measuring ballistic (average) cross-wind. Because weighting factors for range and cross-wind are nearly identical, if you fire 90 degrees to the right of the line of fire and also along the line of fire, you get current values of ballistic range and cross-winds. Actually, it can be shown that instead of firing at right angles and along the line of fire, you may get the answers by firing 45 degrees to the right and 45 degrees to the left.

These are some things Army Ordnance does to reduce exterior ballistic and interior ballistic dispersion, so that precision of artillery fire will be improved. But artillerymen are tough and not easily satisfied. In addition to precision they demand accuracy. Precision is good so far as it goes. It enables you to adjust or correct fire rapidly. But from the point of view of surprise and other elements, it is essential to have the center of impact on the target on the first round. We are doing much toward achieving accuracy by manufacturing the grand lot, but unless you know ballistic range and cross-winds, you won't get accuracy. We have demonstrated techniques by which practically current values for ballistic range and cross-winds may be obtained regardless of the metro message. If you take full advantage of the grand lot and if you employ the techniques we recommend for determining ballistic range and cross-wind, you may, in the future, achieve accuracy as well as precision.

# THE MONTH'S BOOKS

## Reporting the War

**NEVER A SHOT IN ANGER**  
By Col. Barney Oldfield, USAF  
Duell, Sloan & Pearce, 1956  
334 Pages; \$5.00

Reviewed by  
COL. MELVIN ZAIS

*Never A Shot In Anger* is probably the best written account of the operations of the press and radio in Europe during World War II. The author was a Nebraska newspaperman, turned wartime soldier by the exigencies of world affairs. He recognized the Army's great need for effective public relations people, and it is the Army's misfortune that it was so short-sighted as to drive him into an Air Force uniform.

It is difficult to review objectively anything written by Colonel Barney Oldfield if you know him. Behind every line and anecdote are seen Barney's heart-warming grin, his perpetual humorous approach, his insight of little men affecting bigness and his tolerance and understanding. His personal qualities are reflected more in his ability to get along with people and make a friend of everybody rather than in literary talent. So it is with *Never A Shot in Anger*. In his anxiety to recognize his legion of cohorts in the press and radio who covered World War II (the official U. S. record, carried by the office of the Chief of Information, Department of the Army, names 1,828 people who were accredited by the War Department during World War II) he sometimes grows tedious in his attempt to mention everyone.

He has compiled an amazing amount of fact and anecdotes and one wonders at his foresight and energy in accumulating all of this information for posterity. From his accounting of the "Organizational Agony" associated with the establishment of the early press camps, through the occupation of Berlin and the *New York Times* instigated investigation of the Berlin Press Club, he maintains the ever dominant conviction that the story about the little man in his own home town paper is the real way to cover a war.

Despite the great quantity of lively, humorous and sometimes sexy anecdote which permeates the narrative, one feels that Barney exercised a great deal of restraint and he could have told much more if it had not been for his innate consideration of his many friends.

In his preface, he writes a swan song to the World War II type correspondent, being convinced that "The speeds with which modern weapons can be carried and dropped make everything instantaneous and total." It is regrettable that such a realist should have succumbed to his own public-relations copy.

## British Objectivity

**GRAND STRATEGY, AUGUST 1943-SEPTEMBER 1944** (Volume V of History of the Second World War, United Kingdom Military Series)

By John Ehrman  
Her Majesty's Stationery Office, 1956  
634 Pages; Illustrated; Index; \$8.00

Reviewed by  
FORREST C. POGUE

In this first of six volumes to be published on strategy in the British official history of World War II, Professor Ehrman of Cambridge University examines in detail the major Allied discussions on operations in northwestern Europe, the Mediterranean, the Pacific, and the China-Burma-India Theater. The plans for the landings in Normandy, the invasion of southern France, the proposed

attack on Rhodes, and suggested campaigns in the Indian Ocean and Burma are thoroughly dissected. Pacific campaigns, which were for the most part purely American shows, are discussed only as they affected Allied broad strategy. On the other hand, developments in Greece, Yugoslavia and India, which were of primary interest to the British, are examined in detail. The volume has been published out of chronological order because it was first finished, but it is a self-contained book and can be completely understood without the first four of the series.

The book contains little that is startling for a reader who is thoroughly familiar with the U. S. official histories or with Churchill's memoirs and Sherwood's *Roosevelt and Hopkins*. But it is a well-written, objective statement of the high-level decisions by the British and American leaders with sufficient information on manpower, supply problems, diverse national interests and military operations to make the strategy understandable. Like the U. S. official volumes, Dr. Ehrman's book dwells on issues instead of personalities.

The details of the debates over Overlord and Anvil, now familiar to students of the war, are presented at length. In his denial that the Prime Minister and the British Chiefs of Staff seriously intended to propose an invasion of the Balkans in the fall of 1943, the author deals persuasively with a hotly debated question. One might note that writers since the war have tended to confuse talk by Mr. Churchill in 1944 of possible landings along the Adriatic coast of Yugoslavia with postwar suggestions by various writers that we should have pushed into the Balkans with the 1943 proposals. They thus conclude erroneously that Mr. Churchill sought to forestall the Russians at a time when the Allies still were hoping to make certain that the Soviet forces would stay in the war. Dr. Ehrman shows clearly why a Balkans operation would not have been feasible in 1943.

Americans, accustomed to thinking of the CBI Theater largely in terms of the conflict between General Stilwell and Generalissimo Chiang Kai-shek and his friends, will become aware of other implications in Ehrman's account of British arguments that Britain's prestige required her forces to retake former possessions of

## THE MONTH'S REVIEWERS

**Col. Melvin Zais**, Infantry, commands the 187th Airborne Infantry (Combat Group). He knew Colonel Oldfield when he was PRO, 82d Airborne Division in World War II.

**Dr. Forrest C. Pogue**, Director of the George Catlett Marshall Research Center at VMI, reviewed *A Compact History of the United States Army* in our January issue.

**Lynn Montross** has written articles and reviews in *ARMY*, and has published several books. He is a Marine Corps historian.

**Randolph V. Zander**, a long-time student of Soviet military affairs, is employed in the Pentagon.

**Col. Trevor N. Dupuy**, Infantry, wrote *The Military Heritage of America* (with his father, Colonel R. Ernest Dupuy). He is on duty in the Pentagon.

**Capt. Roger W. Little**, MSC, a sociologist, is doing postgraduate work at Walter Reed AMC. He wrote "Headquarters Men" in the November 1956 issue.

the Empire in the Far East. Mountbatten's command difficulties, disagreements between Mr. Churchill and his military advisers over some of their objectives in southeast Asia, Admiral King's disinclination to accept British naval forces in the Pacific—all these come to the fore.

Professor Ehrman sheds new light on the Greek political situation during 1943-44. He outlines carefully the story of the Yugoslav resistance movements in that period and gives reasons for the shift of Allied support from Mihailovic to Tito. Of the rising in Warsaw in 1944 led by General Bor-Komorowski, the author explains that the Poles feared their fight for national independence would be seriously weakened if the Russians "could claim to have freed Poland by themselves, and if no independent Polish authority could maintain itself during the occupation." Thus, when the Poles in Warsaw found large Russian forces near at hand in August 1944, they attacked their German rulers. To their horror, the Russian armies ceased to advance. The result was a Nazi attack which ended in the deaths of some 200,000 men, women and children, and the virtual destruction of Warsaw. "The Polish question, always difficult, now became the conscience of the West, and relations between British and Russia suffered a shock from which they never fully recovered. As the European war entered its last phase the shadow of Warsaw lay over British strategic thought."

Running through the book is the constant reminder that by the fall of 1943 and the spring of 1944, the United States held the extra margin of supplies and manpower needed for Allied victory. In the end, if there was a conflict over strategy, the advantage lay with the United States. Nowhere has the myth that the United States was dominated by the British been more effectively exploded than in Dr. Ehrman's detailed account of the long battle over the landings in southern France (Anvil-Dragon). The resourceful Churchill, furious at an operation which took away landing craft and men from a winning British commander in Italy and made impossible projected operations in the eastern Mediterranean, coaxed, pleaded, cajoled in talks with Eisenhower and in cables to Marshall, Roosevelt and Hopkins. But he did not get his way. Professor Ehrman, while showing the disappointment of the British, states clearly the reasons why the Americans insisted on the operation.

The author wisely avoids a postwar practice of attacking the American leaders for their insistence on a strategy of striking directly at the Germans. The British, he explains early in his volume, had learned as a result of their experience in maritime warfare to rely on a number of complementary targets. They had thus come to value strategic flexibility

above rigid dependence on a particular plan. The Americans, instead, preferred concentration of effort in the Napoleonic sense. "Unused to long wars against numerically superior Continental powers, and rightly confident in their application of ingenuity to unparalleled strength, they had no need for or experience of the devious approach. Their strategic resource and their tactical boldness, the former already displayed in the Pacific, the latter soon to be displayed in north-west Europe, were accordingly exercised in the service of a single strategic target and of a single well-prepared design, and they were quick to note and fear any sign of an apparent dispersal of force, or a departure from plans already agreed."

This impartial statement not only summarizes the basic differences in American and British strategic thought during 1943-44, but it is an example of the type of historical objectivity found throughout the book.

## Second Half—Condensed

### KOREA: 1951-1953

By John Miller, Jr., Major Owen J. Carroll and Margaret E. Tackley  
Office of the Chief of Military History, 1956  
323 Pages; Illustrated; Maps; \$2.50

Reviewed by

LYNN MONTROSS

Horace Greeley, it is related, once apologized for an overlong editorial by saying he didn't have time to write a short one. By the same token, summing up the last two and a half years of the Korean conflict in only 45 pages of text, is a formidable assignment, and it has been handled competently by this OCMH historical team.

Although this is primarily a picture book, the text is the mortar holding together some 275 pages of photographs, cartoons and operations maps.

In his preface Major General A. C. Smith emphasizes that the book does not purport to be definitive history. Volumes treating in more detail all phases of Korean operations are now being written by OCMH historians.

Meanwhile, *Korea: 1951-1953* and its predecessor, *Korea: 1950*, fill a need for moderately priced surveys of broad appeal. They present in condensed form as much history of the 37-month conflict as many readers will care to absorb, yet they hold a great deal of interest for more advanced students of warfare.

Dr. Miller and Major Carroll have necessarily had to write on the corps and division level. They have turned out sound even if much compressed history, nevertheless, and this reviewer has only one bone to pick with them.

It concerns a shortcoming that he must also charge to himself on occasion: the assumption that UN forces were vastly outweighed from 1951 to 1953. As a

matter of fact, according to figures in this book, the enemy had 21 Chinese and 12 North Korean divisions—a total of 486,000 troops—for the offensive which exploded during the last hours of 1950. That is not a crushing advantage in human tonnage for an attack on 365,000 UN troops with command of the air and the sea, not to mention a great superiority in artillery and transport.

Let's face it: the Chinese Communists were tough adversaries, man for man, in mountainous terrain made to order for their semi-guerrilla tactics. The lesson of Korea is not that we were up against overwhelming masses of cannon fodder; it is that young men fresh from the comforts of American life could learn to hold their own in night combat against Asiatic peasants inured to privations all their lives—veterans trained in the guile and craft of the ambush by years of Chinese civil war. Seldom has so much been asked of American soldiers.

The personal side of military life in Korea is depicted in these pages by excellent photographs spiced with an occasional *Stars and Stripes* cartoon. It would be hard to say too much in praise of the selection, and Miss Tackley has shone in the presentation.

All three members of the OCMH team are to be congratulated on an effective arrangement in which chapters of text are alternated in chronological order with pertinent sections of illustrations. The result is a continuity which carries the reader along from start to finish of a paper-back book with an attractive format.

Altogether, it is a book which can be recommended as an interesting and instructive even if brief history of a conflict which never attained the official dignity of a war but bore a resemblance that was more than coincidental.

## Composite View, a Trifle Indistinct

### THE RED ARMY

Edited by Capt. B. H. Liddell Hart  
Harcourt, Brace & Company, 1956  
480 Pages; Index; \$6.00

Reviewed by

RANDOLPH V. ZANDER

In the years immediately following VE-day the West knew more about the Red Army than at any time before or since. A fair number of Westerners had seen the Soviet military in action. In addition, there was the large body of knowledge, opinion and apology that became available from Germany.

Since then the military public has had progressively fewer good up-to-date sources of information on the Soviet Army. Twelve years after the fact we are still living largely on our World War II knowledge or on a more or less valid extrapolation of it. Think what this



would mean in post World War I terms: twelve years after the Armistice, for example, the Reichswehr had become a radically different organization from the Kaiser's army, in many ways closer to the Wehrmacht of 1939.

Because it was a winner, the Red Army since 1945 may have been more complacent and less inclined to soul-searching and change than the Reichswehr; but more than counterbalancing this comforting thought is the rapidly rising tempo of change in the military art that science and technology are imposing on us and the Soviets alike. On balance, these past twelve years surely have produced enormously more changes than the 1920s.

It is from this point of view that we should judge the present book. In it, Captain Liddell Hart has drawn together a series of monographs by experts who know the Soviet Union or its armed forces. First, the writers trace the background, birth, growth, and World War II travail of the Red Army. A series of articles on the various aspects of the postwar army follows. At the end are some speculative thoughts on what the present holds for the future. All in all, it adds up to a useful and thoroughly interesting compendium, reflecting German, French, British and American authors' views and in some cases reminiscences.

Though the book purports to give a panorama of past, present and (to a lesser extent) future, actually it is mainly retrospective. It is principally on this count that one can criticize it. Yet it is easier to criticize than to produce the kind of up-to-the-minute picture of the Soviet Army, stripped of old wives' tales and prejudice, that one would like to see.

The editor and most of his contributors have tried to be on guard against this shortcoming, though some of the German authors' frames of mind are frankly one of fighting the last war, with a perfunctory updating paragraph or two added at the end. Among the Germans, General Student in his article on the airborne forces, is a notable exception. As an example of different treatment, Colonel Reinhardt's speculative discussion of atomic weapons and warfare struck the reviewer as particularly worthwhile. This may be partly because it is aimed wholly at present and future problems and partly because it has the advantage of dealing with a wide range of questions.

Writers on the Soviet armed forces tend often to be either too respectful of their subject or too disdainful of it. Captain Liddell Hart hits the mark: "The Soviet Army is two in one—there is an 'army of quality' within the 'army of quantity' and . . . the Soviet Army is an embodiment of contrasts—a mingling of new and old, of scientific method and primitive habit, of rigidity and flexibility.

## Selected Check List of the Month's Books

*This run-down of some of the books received for review during the month preceding our deadline is to give our readers who like to follow current literature a monthly check list of the most important, useful and potentially popular books. Full reviews of some of these books will appear in this or subsequent issues. Any of these titles may be purchased through the Combat Forces Book Service. See page 72 for order coupon and a complete listing of Selected Books for Military Readers.*

**THE LAST PARALLEL:** A Marine's War Journal. By Martin Russ. Rinehart & Company, 1957. 333 Pages; \$3.95. Guaranteed to raise the blood pressure of any Army officer or noncommissioned officer of more than ten years' service. The latter part of the war in Korea, as seen by a young corporal of Marines, eager for combat, but laced with the cynicism of the fledgling intellectual. There is much to be learned here of the problems of leading young men with modern educations. Book of the Month Club selection, but for the wrong reasons.

**THE SPHINX AWAKES.** By Gerald Sparrow. Pitman Publishing Corporation, 1956. 217 Pages; Illustrated; Index; \$4.50. A British international lawyer writes a pro-Nasser, pro-Egyptian, anti-Israeli assessment of Nasser's régime. Much fact, much opinion. Written before the Israeli-British-French invasion in late October, the estimate of the worth of Egypt's army appears a bit higher than events would prove.

**DESTINY AND GLORY.** By Edward S. Wallace. Coward-McCann, 1957. 320 Pages; Index; \$5.00. The author of *The Great Reconnaissance* writes of the Americans who, between the Mexican and Civil Wars, attempted conquest and revolution in Central and South America. Despite Wallace's degrees in history, this reads like true adventure. The filibusters' bravery far exceeded their military or political judgment; the author's wry comments add flavor to the history.

**HISTORY OF THE SECOND WORLD WAR:** Studies of Overseas Supply. By H. Duncan Hall and C. C. Wrigley. Her Majesty's Stationery Office, 1956. 537 Pages; Index; \$7.00. Largely concerned with the difficulties of the British supply missions in this country, and the efforts made to coordinate British and American requirements, but including British supply activities in British dependencies throughout the world. The authors stress the complications of the supply structure, the good will usually present, and the fact that the flow of matériel and scientific know-how was not all one way.

**A STUDY OF HISTORY:** Abridgement of Volumes VII-X. By Arnold J. Toynbee. Oxford University Press, 1957. 414 Pages; Index; \$5.00. The second (and final) vol-

ume of Somervell's abridgment of Toynbee's great work. Approved by Toynbee.

**THE ANATOMY OF TERROR:** Khrushchev's Revelations About Stalin's Régime. Introduction by Nathaniel Weyl. Public Affairs Press, 1956. 73 Pages; \$1.00. Basically a for-the-record rendering of Khrushchev's February 1956 speech in which he revealed some of the unsavory portions of the Stalin régime. Weyl's introduction, written early in the year, cautiously predicted "attitudes of skepticism and cynicism among Communists in all countries toward their Russian leadership."

**AMERICA'S TENTH MAN:** The Negro Contribution to American Life Today. Compiled and edited by Lucille Arcola Chambers. Twayne Publishers, 1957. 351 Pages; Illustrated; Index; \$7.50. A pictorial review of the American Negro today, highlighting the continuing progress and increasing contribution of the Negro to our society.

**THE ART OF CHINESE COOKING.** By the Benedictine Sisters of Peking. Charles E. Tuttle Company, 1956. 95 Pages; Illustrated; \$2.00. Attractively designed and illustrated, this little cookbook was written by two Benedictine Sisters who conducted a school of Chinese cooking in Tokyo after being forced from China by the Reds. Some recipes, especially desserts, that the reviewer has found nowhere else.

**COMPLETE ETIQUETTE:** The Complete Modern Guide for Day-to-Day Living the Correct Way. By Frances Benton; co-edited by the General Federation of Women's Clubs. Random House, 1956. 414 Pages; Illustrated; Index; \$1.00. A complete dollar's worth. A big book, written on the assumption that you work for a living, probably don't have servants, and might have to rent a dress suit.

**LETTERS FROM LIBBY PRISON.** Preserved and edited by Margaret W. Peelle. Greenwich Book Publishers, 1956. 95 Pages; \$2.50. A very thin book; the diary and letters of a young Illinois Colonel who lost an arm at Pittsburg Landing, his freedom at Chickamauga and, after exchange, his life near Marietta, Ga. An intelligent, almost objective, description of life in the famous Confederate prison.

The puzzling contrasts lead casual observers to widely different conclusions." Thus some contributors have taken Soviet manuals and military writing too literally. Against the picture of a superbly trained army of incredibly tough zombies, Mr. Mikhail Koriakov's series of vignettes on "military atmosphere" strikes a truer and more believable tone. One could imagine,

for example, that the soldiers and officers of the two Soviet divisions stationed in Hungary last autumn found themselves under many of the same disadvantages of lack of preparation that faced our own people in Japan in the summer of 1950.

It is difficult for outsiders to step into a Soviet's skin and see things through his eyes. The fact that many of our im-

pressions come from defectors and from émigrés of another generation does not help clarify matters. It is doubtful whether we understand and assess correctly the role and relative influence—or lack of it—of political officers. Similarly we may misjudge the extent of effect the Communist system has on individual initiative in combat. Sir Eric Ashby, discussing Soviet scientists, makes the valid and important point that academic freedom means less to them than to us. One wonders in this connection what may be the effect at the top and intermediate levels of the Red Army of the New Look in Soviet society that seems to be emerging.

To sum up: Captain Liddell Hart and his collaborators have produced the most authoritative and useful book yet to appear on the Soviet Army. They present widely varying points of view, and thus in the overall result they tend to qualify and supplement one another's special and occasionally one-sided impressions. When all the profiles are laid one on top of the other, the resulting composite may be a trifle indistinct, but its general contour appears to be true, and it is certainly better than anything as comprehensive on this most important subject that we have seen up to now.

## Made into a God

### THE ORGANIZATION MAN

By William L. Whyte, Jr.  
Simon and Schuster (New York), 1956  
429 pages, cloth, \$5.00

Reviewed by  
CAPT. ROGER W. LITTLE

This is a brilliant analysis of the effects of the organization on the individuals who work for it. The "Organization Man" is expected to be devoted to the outfit for which he works: the corporation, the faculty, or the Army. The author notes the shift from the individualistic ethic, to the "social ethic" of modern times. In the background is the conception of the good life as one of industry, thrift, and competition among peers for the good of the organization and of society. But contemporary institutions have fostered the subordination of the individual to the group. To replace the old conception of the good life a new one is developing. At the heart of the new conception is the "social ethic."

The social ethic rests on three propositions, each of which the author attacks with strong evidence. First is the philosophy that groups can create more than any one individual, and it is therefore "good" to have people working together. Second, more than anything else, persons "need" to belong; give them any social group—its goals and history and sentiments are unimportant—and the members will reach the ultimate in happiness. And third, that science, in the form of the personality testers and psychological ora-

cles—has the necessary answers. In sum, the organization has been made a god, and the propositions have become a credo. The only salvation of Organization Man is to know where he *can* be independent. In knowing this area, and working within it, he will be of more value to the organization as a source of creativity.

This is the heart of the book. The rest is a chronicle of how various institutions have fostered the social ethic and left Organization Man ill-prepared. The schools have failed by indoctrinating youth with the primary importance of "adjustment" to the group. Business has done its share by recruiting only those most likely to "play ball" with the team. And the psychologists have provided the sanction of science with an ever-expanding battery of "instruments" designed to cull out and discard the potential genius.

*Organization Man* appears at a time when there is a vague uneasiness about the misuse of human beings in the guise of the "science" of human relations. It is no polemic. Many who read it will scoff, for the subject has become a religion. Others will find a new and useful perspective in their lives as Organization Men. And those who do will be able, for that reason, to give more—to the organization and to society.

## Fascinating Survey

### AMERICAN DEFENSE AND NATIONAL SECURITY

By Timothy W. Stanley  
Public Affairs Press, 1956  
202 Pages; Index; \$3.25

Reviewed by  
COL. T. N. DUPUY

In its two years of existence the Harvard Defense Studies Program has produced, as an important by-product of its courses, an amazing quantity of mimeographed or multilithed documents which have been a gold mine for students of American government, and which have provided valuable reference materials for professional staff officers in the Pentagon. Now, for the first time, an example of its scholarly study of national security matters is available to the general public in book form. It is significant that substantial portions of this book appeared in multilithed form in last year's *Papers of the Harvard Defense Studies Program*, when Mr. Stanley was a research fellow and faculty member of that program.

No one in Cambridge need be ashamed

You'll be doing us and yourself a favor if you notify our Circulation Manager of your new address when you have a change of station.

of *American Defense and National Security* as the preliminary work of what will become in time, undoubtedly, a series of scholarly studies of security problems. It is the only authoritative analysis of current United States defense organization. More pertinent to us, perhaps, is that here, for the first time, the Army officer can find a readable, convenient survey of the relationships of the services to one another and to the Department of Defense, as well as an accurate review of the history of the development of these relationships. While valuable to all officers, this book—if only because of its appendices—is an indispensable reference for anyone on duty with the Army General Staff or with the Department of Defense.

A few quotations, selected more or less at random, reveal the soundness and substance of Mr. Stanley's analysis: "Where civilian leadership is lacking, the military tend to fill the vacuum—not from a desire to run things their own way, but because the job must be done." "Since the [Joint] Chiefs [of Staff] are usually unwilling to send back a paper showing divided opinion, advice on a matter of inter-service dispute may represent their lowest common denominator and be valueless."

"Unification" (a word used by those who believe in it) or 'triplification' (a word used by those who do not) is not something settled by the National Security Act of 1947. Indeed the 1947 Act has been patched and repatched and will be again."

Despite careful and scholarly research there are a few—very few—errors. For instance, we read that Admiral Halsey's controversial part in the Battle for Leyte Gulf was due to "General MacArthur's command arrangement." Halsey, of course, was under the entirely independent command of Admiral Nimitz. Similarly, typographical transposition was undoubtedly responsible for the statement that after World War II "the Western Allies voluntarily withdrew from the Balkans and failed to advance into Czechoslovakia."

These were the only two errors of significance which this reviewer could find after a careful reading of the text. Anyone familiar with scholarly works and critical reviewers will realize that this is unusual, and even these minor lapses will undoubtedly be corrected in future editions.

Because this is a work that deserves future editions. It is hoped that, as the years go by, and as our dynamic national security organization changes, Mr. Stanley will continue to subject it to the same objective, analytic scrutiny which one finds in this edition, and that he will keep up to date his fascinating survey of one of the most important fields of current history.



## *infantry attacks*

By General Field Marshal Erwin Rommel

As a junior leader in World War I, Rommel learned the lessons of leadership in combat. Later, he wrote down what he did, and why, in different combat situations. The result was *Infantry Attacks*, one of the great books on war, and a practical guide to personal leadership. Every officer should read it.

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## Report from your AUSA CP

Chapter and ROTC Company matters take up increasing portion of your staff's work-day. Situation map shows (as of 7 January) 57 local organizations in various stages of formation, from original inquiry to fully chartered. Score to same date shows following chapters chartered: Henry Leavenworth (Fort Leavenworth), Fort Leonard Wood, Fort Riley, Fort Sheridan, Monterey County (Fort Ord), Columbus-Fort Benning. Chapters completing all requirements, waiting for action of Council of Trustees, include Detroit, Wolters (Camp Wolters), Camp Irwin, Lawton-Fort Sill.

ROTC Companies chartered include Pennsylvania State University, Valley Forge Military Academy, and Dickinson. Companies approved for charter, but charters not yet issued, include West Texas State University, Loyola College (Baltimore), Duquesne University, Moccasin Company (University of Chattanooga), and University of Connecticut.

Every mail brings surprises. Just about time your staff thinks it has line on chapters and companies forming, we find that another area has been taking action. This is fine, but some of the effort is wasted through lack of coordination with other efforts, or through lack of familiarity with requirements. It is important that sparkplugs forming chapters and companies keep in close touch with Secretary to avoid duplication and efforts not in accordance with necessary regulations.

At least two army commanders have indicated that they desire local organization efforts to be coordinated with military district headquarters. This might be good idea for all local efforts. Success of chapters and companies will depend at least partially on support from above.

With membership department almost six weeks behind in processing applications, system for recognizing outstanding membership efforts has broken down completely. We do know that Special Activities Division, USAREUR, has signed up at least 185 new members since 6 November--and that others have done as well or better, but we can't prove it.

In case you missed announcement in last CP, Third Annual Meeting is scheduled for 28, 29, 30 October 1957, Sheraton Park Hotel, in Washington. Save the dates--big doings are afoot.

Embarrassment bothers staff during period of expansion. Print order for this issue is 54,000 (our largest since 1944); previous print orders were designed to contain allowance for new membership but lately we have been under estimating. Result is complete sellout of December issue (with full report of Second Annual Meeting) and January issue gone entirely by 10th of issuemonth. We ask patience; we're increasing allowance for new membership, but some who expected membership to begin with January issue will be disappointed.

Study completed on punch card membership operation. Secretary recommends immediate conversion but decision will be made by Executive Vice President.

YOUR SECRETARY

# Selected Books For Military Readers

ALL TITLES ARE AVAILABLE FOR IMMEDIATE SHIPMENT

## World War II

Anzio Beachhead (Historical Division)	1.50
Bastogne (Marshall) (cloth)	3.00
Bradley: A Soldier's Story (Bradley)	5.00
Capture of Attu (cloth)	2.00
Churchill's Memoirs (Churchill)	
Vol. I The Gathering Storm	6.00
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